# A TREATISE ON

# ABDOMINAL PALPATION.

# TREATISE

ON

# Abdominal Palpation.

# A TREATISE

— ON —

# Abdominal Palpation,

AS APPLIED TO OBSTETRICS,

AND

## Version by External Manipulations,

BY A. PINARD,

*Associate Prof. in the Faculty of Medicine of Paris, Former Chef of the Obstetrical Clinic; Knight of the Legion of Honor, &c.*

WITH 29 WOODCUTS INSERTED IN THE TEXT.

---

PARIS, 1878.

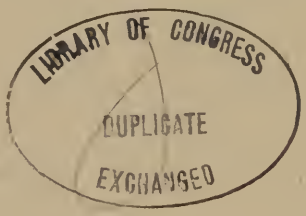
---

TRANSLATED BY L. E. NEALE, M. D.,

*Chef of the Obstetrical Clinic and Demonstrator of Obstetrics in the University of Maryland.*

---

NEW YORK:
J. H. VAIL & CO.,
21 ASTOR PLACE.
1885.



# PREFACE.

Although the classic work of Pinard was in my hands before I left this country, I had no positive idea of the facility, the utility and the certainty of diagnosis by Palpation, until I found it constantly and successfully proved during my stay in Germany, where it has been and is so generally employed and universally known, that it is not deemed requisite to include any *detailed* account of the procedure in systematic works on obstetrics.

Since my return, engaged in teaching practical obstetrics for two years, I found no work in English, to which I could refer my students, in order to follow my instructions.

In all the text-books the subject was mentioned in the most cursory and unsatisfactory manner.

There was no methodical work in which the whole subject was considered in connection with diagnosis and the correction of mal-presentations by external manœuvres, save the published results of Pinard's researches in his 100,000 cases. We had the publications of Wright, Chadwick, Richardson, Wilson and the elaborate and well digested papers of Mundé (Amer. Journ. of Obstet.), but they were only to be found in journal literature, and were consequently not accessible to students as a class.

I therefore, with the consent of Dr. Pinard, undertook the translation and publication of that part of his work concerning external diagnosis and manipulations, for the use of my class, and also that the younger members of the profession might have the opportunity to study and appreciate so important a part of the obstetric art. Dr. Pinard not only kindly authorized this, but generously offered the use of his plates, for which I here make my acknowledgement. The publisher however procured the cuts from Baltimore artists, which do not compare unfavorably with the original.

The subject being so purely demonstrative, the translator has felt it his duty to make his work as literal as possible.

DR. NEALE.

PARIS, 26, RUE CAMBON.

Monsieur et cher Collégue :

Permettez moi, tout d'abord, de vous remercier des appreciations si flatteuses que vous portez sur mon traité du Palper Abdominal. Je vous donne toute l'autorisation nécessaire pour traduire mon livre.

Si vous avez besoin des figures, vous pourrez vous adresser á mon editeur qui vous livera les bois.

Je n'ai rien publié dans le texte de l'ouvrage du Professeur Tarnier, ni dans aucun ouvrage français devant être traduit en langue-anglaise.

En vous remerciant encore, et en vous priant de me donner l'occasion de vous être agréable, je vous prie d agrier, mon cher collégue, l'expression de mes meilleurs sentiments.

PINARD.

*Dec. 26th, 1884.*

# Abdominal Palpation as applied to the diagnosis of pregnancy.

Since Rœderer (1) directed the attention of obstetricians to abdominal palpation, by showing the valuable advantages that may be derived from it, in connection with the *diagnosis of pregnancy*, nearly all authors have mentioned this method of exploration; but I may say, that vaginal touch and auscultation alone have been described by them with any degree of thoroughness.

Without desiring to detract in the least from the very precise results, that may be obtained by the aid of these two methods of exploration, as applied to the diagnosis of pregnancy, I believe that the external examination will also often render great service, and should therefore, be described more in detail than is observed in most of our classic works.

As applied to the diagnosis of pregnancy, palpation has for its object to reveal the presence of a tumor in the abdominal cavity, and moreover, to make known the nature of its contents.

## EXAMINATION OF THE UTERUS BY PALPATION.

It is absolutely necessary, before practicing palpation to empty both bladder and rectum. The woman lying down in the position described on page 12, after having appreciated the thickness, the degree of tension and the sensibility of the abdominal wall, one should seek the presence of the tumor. At this point, let it be well understood, percussion may render valuable service, but, I shall not delay with that method of exploration.

In certain cases, where the size of the tumor is marked, it immediately presents itself to the examining hand and nothing

1. "Rœderer," Elements of the art of obstetrics. Page 74, translation Paris, 1765.

remains but to appreciate its contour, and its consistence. This condition exists when the pregnancy is well advanced, or where the neoplasm is well developed.

When, on the contrary, the tumor is less marked in the hypogastric region and is partly concealed in the cavity of the small pelvis, its discovery may be attended with considerable difficulty.

In this case it is well to tell the woman to breathe deeply while the examiner makes pressure with the two hands applied flat over the abdomen.

I y gently continuing this pressure, he gains a little with each expiration, till he is finally able with considerable facility to explore the large pelvis and the region of the superior strait.

Sometimes the hands applied in this manner may penetrate deep enough to touch the sacro-vertebral angle, which, without due caution, may be mistaken for a pathological tumor. During my internship in the service of my excellent teacher, Dr. Woillez, I witnessed such an error.

The tumor once recognized, what is its nature?

Is it possible by merely palpating the tumor, and without knowing the nature of its contents, to declare that it is the uterus?

Notwithstanding the assertion of certain authors, I think not, and for the following reasons.

These authors say that when you have marked out an abdominal tumor, and that tumor alters its consistence, contracts and hardens under the hand, you may safely assert that it is the uterus, for no other tumor, whatsoever be its nature, can offer these peculiarities,

I believe that this assertion is too positive, for on the one hand the bladder, enormously distended with urine, may contract, as has been observed by my two teachers, Pajot and Tarnier, upon a woman admitted into the hospital clinic for retroversio uteri gravidi.

On the other hand a subperitoneal fibroid attached to the uterus by a slender pedicle may harden under the hand, as I have on two occasions most distinctly observed.

The external exploration of the tumor, then, will only give the probabilities, the internal exploration alone will give a certainty.

This exploration of the contents may be either direct or indirect: direct, when one introduces a finger or an instrument into the cavity itself through the os; indirect, when one seeks either by auscultation to hear the fœtal heart sounds, or by vaginal touch or abdominal palpation to discover the active or passive movements of the body contained.

Here, I shall speak only of palpation.

Now, that it is generally and justly admitted that the passive movements of the fœtus constitute one of the three certain signs, since gravid uterus during the latter third of gestation and sometimes during the second half is the *only* abdominal tumor in which one may distinctly perceive the presence of *a solid body movable in a liquid'* (1), one understands the importance that is attached to all means which may furnish this sign. (2)

To be sure, if the tip of the index finger be placed in front of the cervix uteri and suddenly depresses the uterine wall at that point, it may often be easy to perceive ballottement, *i. e.* the sensation of a solid body which recedes and returns, producing a light tap on the finger. But just in those cases where this manœuvre gives only negative results, palpation may be more serviceable.

One may obtain ballottement as follows: the tumor being well mapped out and the hands placed on each side of the uterus, by depressing, a little sharply the uterine wall with one hand while the other steadies it on the opposite side, the sensations perceived may be various. Sometimes the depressing fingers perceive a solid body which recedes and there is no other sensation; again, the depressing fingers may feel nothing, while the hand placed on the opposite side experiences a gentle tap produced by the body which being displaced has directly struck against the uterine wall at that point.

It has several times occurred in my experience to observe these different sensations during the third and fourth month of pregnancy; but it is not after this fashion that one generally

1. *Des causes d'erreur dans le diagnostic de la grossesse*, by Prof. Pajot. *Annales de gynécologie, 1874.* T. I, p. 188.

2. The only tumor which can give the same sensation, is the fœtal sac of an extra uterine pregnancy.

obtains ballottement; it is when the fundus of the tumor is at or near the umbilical region, which of course necessitates a considerable development of the uterus, that true ballottement may be best felt externally, and I do not hesitate to say, almost as easily as by vaginal touch.

In that region the thickness of the abdominal wall is considerably less than elsewhere, and the uterine wall being therefore separated from the examining fingers only by a very small interval, by gently tapping with the finger tips one obtains the single or double rebound, very distinctly. Just, as when examining the uterus by vaginal touch for this purpose, we select the anterior cul-de-sac, I think that when examining by palpation, we should select the region about the umbilicus.

Finally, the hand applied mediately over the uterine wall, may perceive the *fœtal shock*, *i. e.* the active movements; a sign obtained earlier than ballottement, as was first shown by Prof. Pajot, by the aid of ausculation; which sign, shows not only the presence but also the life of the fœtus.

## Abdominal palpation as applied to the diagnosis of presentations and positions.

*Preliminary preparations.*—To practice palpation the woman should be in the dorsal decubitus.

Although we can generally explore the whole abdomen when the woman is protected by her garments, by taking care to raise these as high as the epigastrium, it is better in practicing palpation that she be upon her bed clad only in her chemise.

In truth, the garments being drawn up, not only may they become a source of discomfort to the woman herself, but often hinder the explorer in examining the fundus uteri, particularly in those cases where the organ has attained such a degree of development and of elevation that its fundus is concealed under the false ribs. The corset produces the same inconveniences. I have moreover noticed in these cases, that despite all our precautions, there is produced by the rolled up clothing or the corset, a constriction around the abdomen, or lower part of the thorax, that hinders the free play of respiration; there then follows an acceleration in the respiratory movements, and as each inspiration stretches the muscles of the abdominal wall, there is only a very short complete relaxation during expiration, and on that account the examination is rendered more difficult.

The decubitus should be as horizontal as possible. During the latter period of pregnancy nearly all women experience relief, especially with regard to respiration, by reclining with the head high and propped up by several pillows. This is a bad position for practicing palpation; the contents of the abdominal cavity have a tendency, especially in multiparæ, to sink towards the inferior region of the abdomen, lying over upon the symphysis pubis and sometimes even passing below it; and it is therefore in some cases extremely difficult or even impossible to explore the cavity of the small pelvis. One should then remove the pillows and permit the head to rest upon the bolster,

or upon one pillow only, should the simple horizontal position be too uncomfortable.

Nearly all, if not all authors advise that the legs be flexed upon the thighs and the thighs upon the abdomen.

This precaution is bad in all respects and for the following reasons: the object in view by flexing the lower extremities is the absolute relaxation of the abdominal muscles; but that object is not obtained by this position, far from it; for the woman then having a true purchase, is decidedly more disposed to contract these muscles, the effort being thereby rendered easier.

But this is only a secondary matter; of more importance is it to recognize that by flexing the inferior extremities of pregnant women, it becomes practically impossible to explore the pelvic cavity. Especially during the latter period of gestation, when the abdomen is more or less prominent and this semi-flexion brings the anterior face of the thighs against the abdominal wall, it is absolutely impossible to find certain diagnostic points, or in a word to examine the excavation.

So far from having the inferior extremities flexed, I think it is decidedly preferable to have them extended, and slightly separated, in order that the horizontal rami of the pubes may be more easily explorable.

Is it necessary to explore the abdominal wall nude, or may one practice palpation with the abdomen covered by the chemise? I do not hesitate to acknowledge that while it is often possible, indeed easy, by palpation practiced upon an abdomen covered by the chemise, to make the diagnosis of both presentation and position, it is at the same time infinitely better to practice this mode of exploration upon an abdomen entirely nude.

To recapitulate, I believe the very best position in which it is possible to place the woman is the following: *horizontal dorsal decubitus, head slightly flexed, arms lying alongside of the trunk, inferior extremities extended and a little separated, the abdomen uncovered from the pubic to the epigastric region.*

It is useless to insist upon the point, that the woman should not lie in the middle of the bed, but should be near the edge, in order that the examination may not be too severe for the woman or too fatiguing for the operator.

It should likewise be remembered that very often, even at the beginning of the examination, the uterine muscles may contract (painless contraction of pregnancy) and the hand find nothing but a globe as hard as wood, which can not be depressed at any point on its surface.

We should then *wait*, and after a little while, rarely exceeding a few minutes, the uterus will enter into a condition of relaxation, in which state alone can the examination be made with fruitful result. Finally, I can not too much insist upon a detail of very great importance: I desire to speak of the temperature of the hands of the examiner. Nothing is more disagreeable to the woman than the application of cold hands to the abdominal wall, besides, the sense of touch is less acute, as everyone knows, when the hands are not sufficiently warm.

## Method of Examining.

One may stand indifferently to the right or to the left of the woman, but it is necessary that the accoucheur should stand at about the height of the umbilicus.

One should then examine the thickness of the abdominal wall, for the sensations preceived will be more or less distinct and superficial, just in proportion as the abdominal wall is more or less thick.

This examination is very easily made in all cases; it is only necessary to catch up a fold of the wall, and the thickness of this fold will inform us sufficiently. At this moment palpation really begins.

Where should one begin to palpate?

Should one seek indifferently any part of the fœtus: and place the hands either above or below?

Nearly all accoucheurs who use this method of examination, advise, to begin by seeking the head; others say, first map out the uterus, depress its different parts indiscriminately from above downwards, or from below upwards, from right to left or from left to right and then analyze the sensations perceived, and finally arrive at a diagnosis· by synthesis.

These different methods of examining present great inconveniences, and every time I have made the students palpate without giving them other rules, I have seen them misled and make false diagnoses. Indeed, it is hard to understand why this should not be so; the head does not always constitute a fixed sign; it may be deeply engaged in or situated immediately above the superior strait. The planes of resistance may be found in nearly every part of the abdomen, as is shown in the diagrams of this chapter. Therefore, in analyzing with care the sensations perceived, it is only with difficulty that one can mentally *see* the fœtus in utero. That those accoucheurs accustomed to practice palpation, do rec-

ognize the various attitudes of the fœtus during the latter period of pregnancy, and are able to make an exact diagnosis after the above method, can not be doubted; but at the same time, they well recognize the fact that it requires a long experience to arrive at such a result.

For these reasons I have endeavored to simplify the method, to render it rational, and make it rest entirely on the exact knowledge of the various attitudes the fœtus may assume during the last month of gestation; *i. e. the accommodation.*

Thus, attentive observation has shown that at the time of labor only certain parts of the fœtus can present at the superior strait, and not any part as was thought for so long a time; we now know that during pregnancy the product of conception obedient to physical laws, takes determinate attitudes, is governed by determinate causes, and not by indifferent and accidental circumstances.

The touch, in relation to the diagnosis of presentations and positions did not become either possible, easy or precise, until the close of the epoch when the labors of Lachapelle, Dubois and Nægelé destroyed the table of ancient ideas and simplified the classification of both presentations and positions. Before that period, and indeed even during the time of Baudelocque, the obstetrician upon introducing his finger in the genital tract, was obliged to confront himself with this question: which one of the 6 presentations and the 102 positions shall I find?

To day, the method of examination has become relatively easy, so that the student knows the finger can only meet with three parts of the fœtal body, with their two varieties and four positions.

But palpation is not so easy unless one has some idea of the normal or abnormal situations the fœtus may take towards the end of gestation.

Knowing that the cephalic extremity should be found in the pelvic excavation (all conditions being physiological,) it is then that region which should be first examined. There is still another advantage in this method, viz: the diagnostic marks of the mother instead of the fœtus, are fixed.

## EXAMINATION OF THE EXCAVATION.

It is necessary to find the pubis and its horizontal rami, i. e. the superior opening to the excavation or the anterior part of the superior strait. (see Fig. 1).

It is absolutely indispensable to recognize this point, as it is only after this, that it will be possible to appreciate the degree of engagement of the fœtal part, which will be more or less marked, according as the presentation is found above or below this point.

In nearly all women, it is quite easy to find with the extremity of the fingers the superior border of the anterior

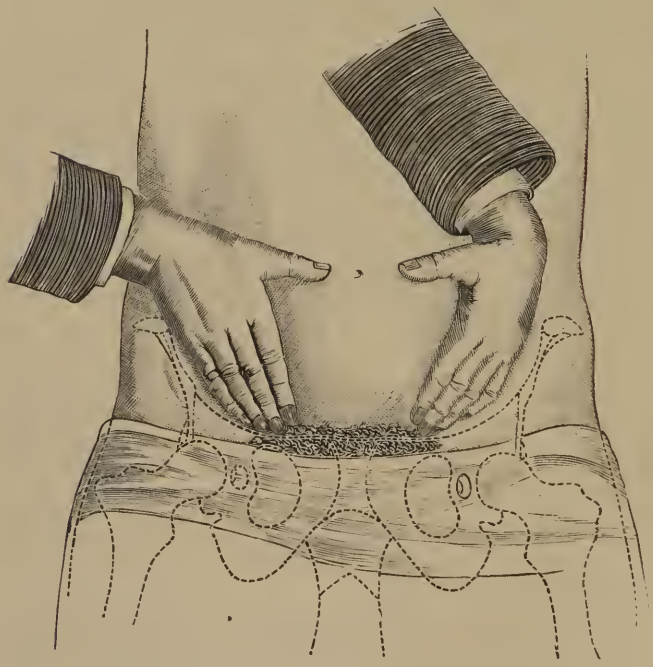


FIG. 1.—Position of the hands at the beginning of the examination of the excavation.

curve of the pelvic brim; with some, and particularly with those who have the abdominal wall thin and extensible, and the uterus in anteversion, *the pendulous abdomen*, or even with those who have a very pronounced inclination of the superior strait, an anteversion of the pelvis, it becomes necessary first to raise up the sagging abdomen with the palms of the hands, and then to seek the points above indicated.

The examiner should then interrogate the excavation. For that purpose, placing the hands about five or six centimetres to the right and left of the median line, the extremities of the fingers being in relation with the anterior curve of the pelvis, he depresses the abdominal wall from above downwards and from before backwards, just grazing over the horizontal rami of the pubes, (see Fig. 1).

When properly palpating, only two sensations may be perceived, viz: the fingers experiencing a sensation of resistance, resulting from contact with a hard, round, and voluminous body which fills the excavation, can not penetrate deeper; or, on the contrary, they only meet with the resistance offered by the soft parts, and can therefore sink more or less deeply into the excavation.

In the first case the pelvic excavation is full, in the second it is empty of the fœtal parts. Let us examine the two cases: excavation full and excavation empty.

*Excavation Full.*

The body that one finds always presents the following characters: it is round, regular, resisting and fills, either entirely or partly, the pelvic excavation. These characters can belong to the cephalic extremity only; again, palpation being practiced during gestation, *i. e.* before the commencement of labor, it can only be the flexed cephalic extremity, *the vertex*, that presents, for during gestation, one never meets with the cephalic extremity extended, (the face), the breech, or the trunk.

Of the five parts of the fœtus that may offer, before labor, *the vertex alone engages.* By reason of the anatomical conformation and the volume of the other parts, it becomes necessary and indispensable for the production of their engagement, that

there exist strong and frequent contractions; and these do not appear except during the pains of labor and never during gestation.

Hence the *first point* of extreme importance. The fixed and essentially practical deduction from this simple fact, of knowing that in a pregnant woman not in labor, there is but one fœtal part that sinks into the excavation, is the following: *the presentation is that of the vertex;* moreover, this extremity engaged in the pelvic canal has still another significance none the less important: it shows that the presentation is fixed and definite. There then comes into relation, the coincidence of the three axes, viz: the fœtal, uterine and pelvic; and it is no longer possible for the fœtus to leave the situation that it occupies or for the head to abandon the small pelvis to reascend into the great abdominal cavity; in a word, the change of presentation is impossible, variations of position alone may occur.

*Secondly.* When the vertex is engaged, *the cephalic tumor is always more accessible, more prominent on one side than on the other;* thus, when the fingers of one hand can descend more or less into the excavation, the fingers of the other will be arrested sooner at a point near the superior strait, (*see* fig. 2). *That portion of the cephalic sphere which is more prominent, more accessible, more elevated, is formed by the frontal region.*

From the exact knowledge which we now possess, of the mechanism by which the fœtus enters into and traverses the pelvic canal, we know that the head can engage only when it is flexed; then in proportion as the occiput descends, the brow rises (the occipito mental diameter see-sawing and finally engaging by one of its extremities), in such a manner that when as in primiparæ, the head carrying with it the inferior uterine segment is sunk and fixed in the excavation, whilst resting on the pelvic floor, the brow is still accessible at or a little below the superior strait.

When the engagement is less pronounced, when the occiput is directed posteriorly and when, as every one knows, the flexion is far from being complete, the difference in height between the brow and occiput is still distinctly perceptible.

At the same time I may also add, that the frontal region is not only more elevated, but moreover seems harder to the hand

than the occipital. Thus, does this simple discovery suffice to establish simultaneously and immediately the diagnosis of both presentation and position. To sum up : in vertex presentation—cephalic tumor more accessible on the right : position left ; cephalic tumor more accessible on the left : position right.

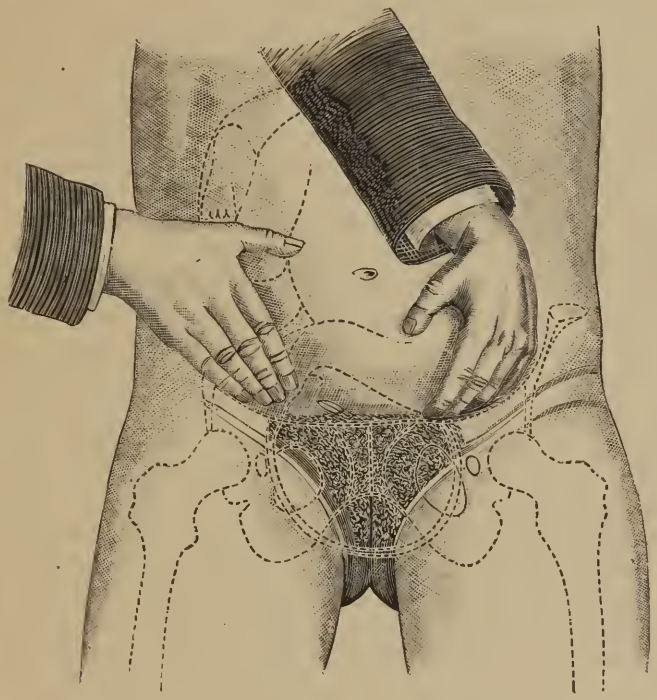


Fig. 2. - The hands exploring the excavation. The right hand arrested by the brow on the right side.

The inferior extremity of the fœtal ovoid being recognized, we should then seek the superior extremity. This latter will nearly always be found in the fundus uteri, it may be, directly under the median line or inclined to the right or left. In examining this extremity one feels the sensation given by a body voluminous, irregular, and of less consistence than that of the head, and moreover often accompanied by the small parts. Sometimes

these small parts are, so to say, massed together with the breech (the fœtal pelvic extremities remaining flexed); sometimes they are found more or less distant; and still again, it is sometimes impossible to find them at all, as when the back of the fœtus is in relation with the abdominal wall.

Having thus examined the superior extremity of the fœtal ovoid, composed in part or entirely of the breech, to establish the diagnosis of the variety and the position, or of the position and its variety, if the characters I have described as belonging to the brow and occiput, have not been sufficiently distinctly perceived, one should seek the situation of the back. For this we should be careful to observe, while depressing the abdominal wall, upon which side is found the resisting plane of the uterine contents, that connects or unites the superior with the inferior fœtal pole.

This should be done by the aid of gentle pressure practiced only by the tips of the fingers. The sensation perceived is not always the same; generally the back of the fœtus is exactly applied against the uterine wall, and this against the abdominal wall; in which case the resisting plane seem quite superficial; at other times, when there exists between the back and the uterine wall a certain quantity of liquor amnii, the resisting plane seems to be situated more deeply, because the fingers must displace the intervening fluid. Be that as it may, when the back is in front we can, so to say, map it out, but should it be behind, we can not touch it, and can then only feel one of the lateral planes.

When we have found the back or the lateral plane on one side, we should depress in the same manner the abdominal wall on the opposite side, in order that we may obtain a means of comparison, to appreciate the difference of the sensation made by the fœtal plane or by the elasticity of the liquor amnii. It is indispensable to practice this little manœuvre in order to assure one's self that there are not several products of conception, or neoplasms and especially myomata present.

*Excavation Empty.*

In this case one finds the inferior extremity of the fœtal ovoid *either above the plane of the superior strait, or in one of the iliac fossæ.* In the thousands of women that I have

examined, on two occasions only did both extremities of the fœtus correspond with the maternal flanks, as is shown in figures 24 and 25 : among all the others, wherever I found the excavation empty, the inferior fœtal pole was discovered either directly above the plane of the superior strait or in one or other of the iliac fossæ. In general, then, one is nearly sure to meet with a large extremity in relation with the large pelvis. The other extremity is very easy to find, for when one of the iliac fossæ is occupied by one of the extremities, *the other extremity is always in the flank of the opposite side.* The two extremities being found, the examiner should seek if the head is above or below ; this differential diagnosis does not present any difficulty.

In the first place, each extremity can be recognized according to its proper characters, but moreover, a sign which one might call pathognomonic will serve to remove all doubts immediately. This sign is the *ballottement*, which is perceived when one impresses on that point of the abdominal wall in relation with the cephalic extremity, an impulse or depression somewhat sharp (1) (see figure 15).

We then perceive how this part of the fœtus more readily recedes from the abdominal wall than does the pelvic extremity ; it truly ballots, and that does not occur when we make similar pressure over the region of the pelvic extremity.

This particular mobility of the head results, in part from its spheroidal shape which will not permit it to touch the uterine wall except by one single point at a time ; in part also, from the manner in which it is articulated with the trunk. It is by reason of the entirely special manner of articulation of the head with the vertebral column, that one can impress upon the cephalic extremity, movements which do not extend to the trunk ; while if one depresses the abdominal wall over the pelvic extremity, this latter can not be displaced without carrying with it the trunk ; finally, the different parts composing the breech are in contact with the uterine wall by larger surfaces.

Therefore, it is apparent, the differential diagnosis of the locality occupied by the head or breech is in effect sufficiently

1. This little manœuvre is called in Germany : Manœuvre of Valenta.

easy. The discovery of the back will then enable us to make the diagnosis of the position and of the variety.

In the chapter on the *Diagnosis of breech presentation by palpation*, are shown the difficulties that may be encountered in certain cases, (see page 36).

## SENSATIONS FURNISHED BY PALPATION IN THE PRESENTATION, THE POSITIONS AND THE VARIETIES OF POSITION OF THE VERTEX.

*Occipito-iliac left anterior.*

The hands find the excavation filled by the cephalic sphere; but on the right side of the pelvis the fingers can not descend as deeply as on the left, (see Fig. 3).☞

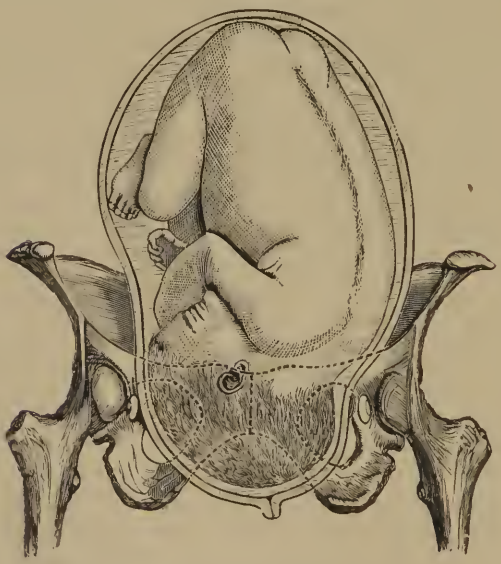


Fig. 3.—Vertex presentation: Occipto-iliac left anterior.

To appreciate well the difference in height between the occiput and the brow, it is necessary to direct the hand that ex-

amines on the right side a little behind, towards the sacro iliac symphysis, (the antero posterior diameters of the head lie in the left oblique diameter of the pelvis).

The pelvic extremity occupies the fundus uteri, but is generally found on the right side. In some primiparæ one finds it under the median line.

In multiparæ, by reason of the increased transverse diameters of the uterus, the breech remains more to the left.

The resisting plane, the back, is situated to the left anteriorly while on the right side, we find only the elasticity of the liquor amnii, and the small parts.

These latter may be found as well above as below, for it sometimes happens that one perceives both upper and lower extremities with equal facility.

In certain cases *ex. gr.* in women who have already borne several children and consequently possess a certain laxity of the abdominal wall, although the head may have penetrated into the excavation, the trunk acquires only a semi-accommodation, *i. e.* the back traverses the abdominal wall diagonally, the breech resting in the right flank, while the shoulders are in the left iliac fossa. A straight line drawn from the right flank towards the left iliac fossa would represent very well the direction of the resisting plane.

This is a first degree of non-accommodation which is shown only in cases of anterior obliquity of the uterus (pendulous abdomen), ["ventre en obusier, en besace, etc."]

*Occipito-iliac right posterior.*

The hands find the excavation filled by the cephalic sphere, but the fingers can not penetrate as deeply on the left side as on the right. Although in posterior varieties the flexion is less pronounced than in the anterior, the difference in height between the brow and the occiput is still well marked, and is easily perceived, because the brow being situated in front, in relation with the ilio-pectineal eminence, it presents itself, so to say, to the hand, while the occiput remains concealed behind and to the right.

The breech is in the fundus uteri, generally on the left side, although sometimes under the median line. The resisting plane is to the right, but offers less surface than in the anterior varieties.

We can examine but little else than the left lateral plane of the fœtus, and not the back. Generally the left shoulder is found about 7-8 centimetres from the median line.

On the left side we find only the elasticity of the liquor amnii and the small parts more easily accessible than in the anterior varieties.

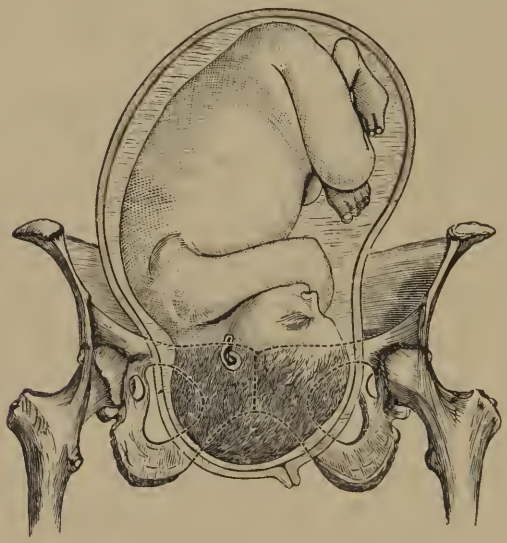


Fig. 4.—Vertex presentation: Occipto-iliac right posterior.

*Occipito-iliac right anterior.*

The excavation is filled by the cephalic sphere, but the hand penetrates more deeply upon the right than upon the left side. The breech is in the fundus uteri, generally on the left side.

The plane of resistance occupies the entire right side of the abdominal wall. The left side of the fœtus is in relation with the linea alba. The surface of the resisting plane is decidedly more considerable than in the posterior variety. By placing one hand on a level with the median line, and the other behind and to the right, we can, so to say, map out the back, (see Fig. 5).

On the left side is found only the elasticity of the liquor amnii and the small parts.

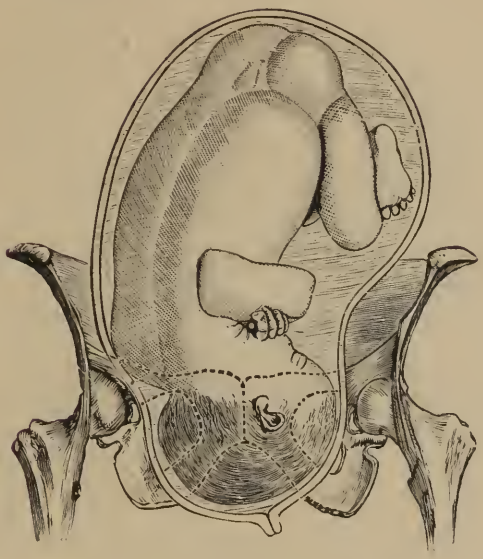


FIG. 5.—Vertex presentation. Occipito-iliac right anterior.

*Occipito-iliac left posterior.*

The excavation is filled by the cephalic sphere, but the hand penetrates deeper on the left than on the right side. The breech is in the fundus uteri generally to the right. The plane of resistance is on the left side but offers less surface than in the anterior varieties. We can examine but little else than the left lateral plane of the fœtus and not the back. The right shoulder is found about 7 to 8 centimetres from the median line.

On the right side is found only the elasticity of the liquor amnii, and the small parts very easily accessible.

*Occipito-illac transverse.*

During gestation, I have never found the transverse variety except in two classes of women; 1° in those presenting a very pronounced anterior obliquity of the uterus; 2° in those whose pelvis deformed by rachitis was contracted antero-posteriorly (flat pelvis). In the former the head being engaged in the exca-

vation is difficult to find unless one takes certain precautions, already mentioned, which consist in elevating or redressing the abdominal wall during the examination of the diagnostic points.

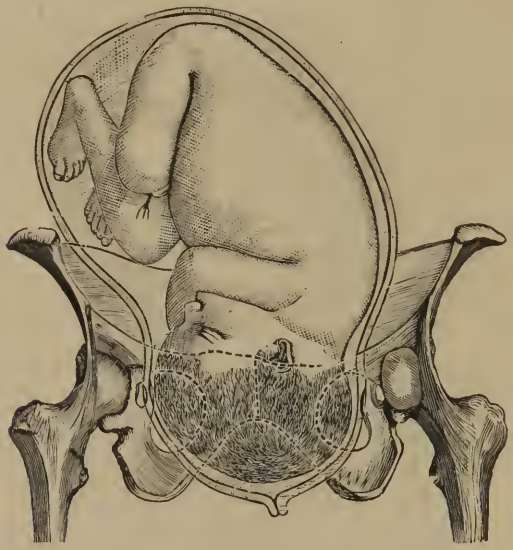


FIG. 6.—Vertex presentation: Occipito-iliac left posterior.

The superior border of the pelvic canal being found, the cephalic tumor is then very easily perceived, more accessible on one side than on the other. But if the hand is carried up over the fundus uteri, which is relatively low, it does not meet with either large or small extremities.

The breech is found in or above one of the iliac fossæ, always on that side where the cephalic sphere is more accessible.

It has often occured to me to find the feet a little distance above the brow, (see Figs. 7 and 8). The resisting plane is directed neither anteriorly nor posteriorly, but is situated transversely. The trunk of the fœtus curved upon itself represents an arc of a circle. The elasticity of the liquor amnii is found both above and below the resisting plane. If one does not know this particular accommodation of the trunk of the fœtus, it is extremely difficult to recognize it and on that account to make the diagnosis. Practically one finds a resisting surface as well on the right side as on

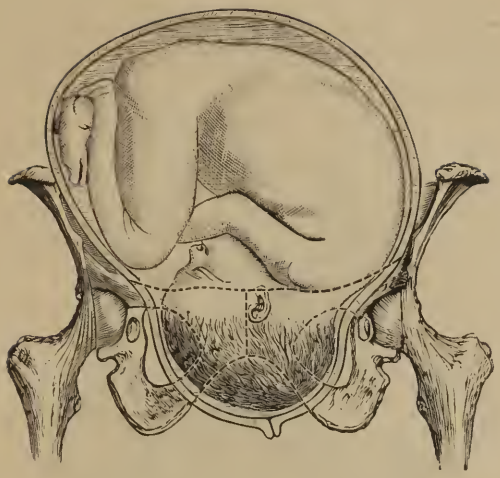


FIG. 7.—Vertex presentation: Occipito-iliac left transverse. (In those cases where the uterus falls forward.)

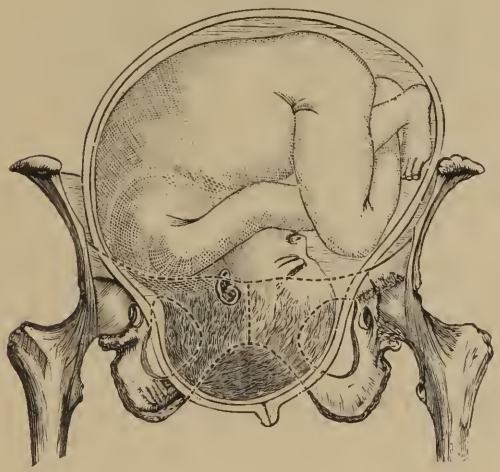


FIG. 8.– Vertex presentation: Occipito-iliac right transverse. (In those cases where the uterus falls forward.)

the left; the elasticity of the liquor amnii is perceived as easily above as below; the uncertainty is great and hence the frequent erroneous diagnoses. Knowing, however the attitude of the fœtus in these cases, we will, on the contrary, arrive at the right conclusion.

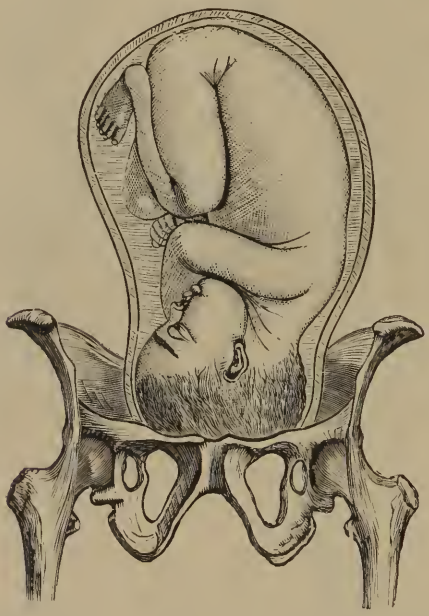


FIG. 9.—Vertex presentation: Occipito-iliac left transverse. (Pelvis deformed by rachitis.)

In those women having a pelvis deformed by rachitis, when the head is below, it may be found on a level with the plane of the superior strait, or somewhat engaged and generally slightly flexed; sometimes it is still possible, at the same time to recognize upon which side the brow is found by reason of its greater elevation, but especially on account of its very marked hardness.

If the uterus be not anteverted, the breech occupies the fundus uteri. The resisting plane is directed neither anteriorly nor posteriorly, but exactly towards the right or the left side, according as we have to do with the one or the other position.

Here it is not the form of the abdominal or uterine cavity, that determines the situation of the back, but it is the head

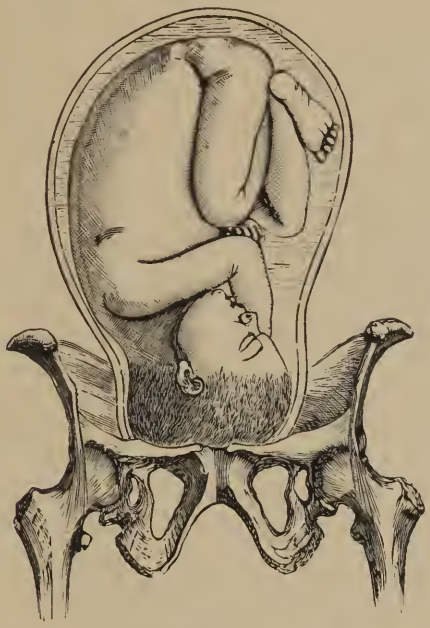


Fig. 10.—Vertex presentation; Occipito-iliac right transverse. (Pelvis deformed by rachitis.)

itself, which is called upon to accommodate its greatest diameters (antero posterior), with the greatest or transverse diameters of the pelvis.

## SENSATIONS FURNISHED BY PALPATION IN THE PRESENTATION, THE POSITIONS AND THE VARIETIES OF POSITION, OF THE FACE.

I have never seen a face presentation during pregnancy. Three times have I had the opportunity of examining women during pregnancy, in whom the children have presented by the face at the moment of labor.

In the first a III-para examined before the commencement of labor, I found the head not yet engaged, but quite prominent just above the plane of the superior strait and presenting in a situation intermediate between flexion and extension. The somewhat voluminous fœtus was very movable. What was the cause of extension just at the moment of labor?

I do not know, but I can affirm that at the time of the examination, which was made a few hours before labor began, the head was not in the least extended.

In the second, I assisted in the production of the presentation. It was a rachitic woman whose pelvis at the brim measured only 8 centimetres in the conjugate diameter. Labor was induced by the use of Tarnier's "excitateur." The head was down but freely movable above the superior strait. When there was sufficient dilatation of the os, the head not engaging, forceps were applied upon the head, not flexed, it is true, but *not extended.* After several fruitless tractions the instrument was removed and a presentation of the face was diagnosed both by palpation and touch.

In these two instances, the possibility of the presentation was attributed to the high situation and mobility of the head. As to the accidental causes, it was produced only under the influence of the contractions of labor in the first case, and under the possibly mal-directed traction in the second.

The third case offered a remarkable example of a face presentation substituting a vertex presentation, whilst in the pelvic cavity. I had examined the woman for the fourth time during gestation, on the evening preceding her labor: by palpation I recognized a vertex presentation, touch only confirmed this diagnosis, for the cervix being quite dilated, I could very readily feel the sagittal suture and the two fontanelles. Labor set in during the night, and the child was born spontaneouly, presenting by the face; it weighed 3,000 grms.

The explanation of this abnormal occurrence, was afforded me by the mensuration of the cephalic diameters, which I found to be as follows:

| | |
|---|---|
| Occipito-frontal diameter | 11 c. m. 5. |
| Occipito-mental " | 12 |
| Bi-parietal " | 10 |
| Sub-occipito-bregmatic diameter | 10 |

Altogether the head presented the configuration of a ball; moreover, the length of the occipito-mental diameter did not exceed 12 centimetres, *i. e.* the length of the diameters of the excavation rendered possible this turning of the occipito-mental diameter in the pelvic canal. Among all the other cases where I could practice palpation, in face presentations, the women were more or less advanced in labor; nevertheless palpation was generally easy.

Though it be true indeed, that in these cases palpation may be of less diagnostic value, because by vaginal touch we can nearly always, directly feel the fœtal parts, it is also none the less true, that we may be somewhat embarrassed even after having had recourse to that method of exploration, especially when the presentation is only with difficulty accessible, and can not be examined over a large part of its surface. It is for this

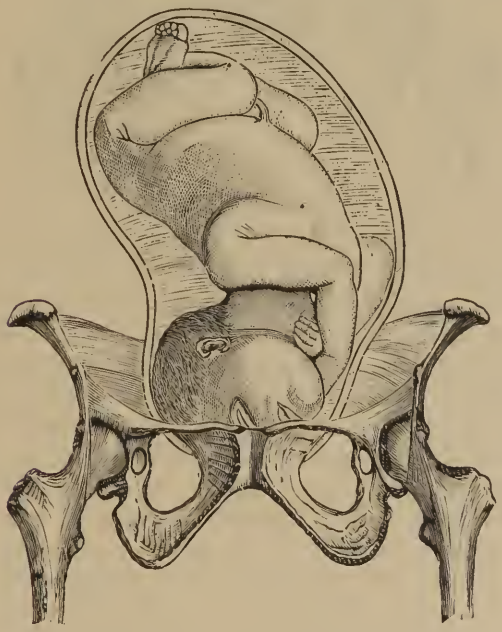


Fig. 11.—Presentation of the face, mento-iliac left anterior.
(Presentation at the commencement of labor.)

reason I think I should present somewhat in detail the sensations perceived by palpation in these conditions.

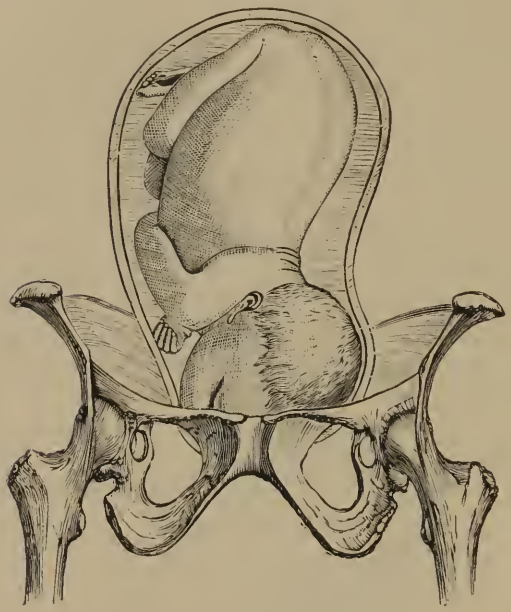


Fig. 12.—Presentation of the face, mento-iliac right posterior. (Presentation at the commencement of labor.)

In presentation of the face, the examination of the excavation enables us to recognize the presence of a large tumor, at, or above, or below the superior strait, according to the period of labor at which the examination is made. Moreover, this tumor seems to occupy but one side, or rather only a part of the small pelvis: very round, large, and accessible on one side, it appears to be wanting entirely on the other. Passing the hand then to the fundus uteri, we find, generally on the side where the pelvic tumor is more prominent, the breech, recognized by its peculiarities. To thoroughly trace out and appreciate the resisting plane, we should depress the abdominal wall slowly and deeply, for this resisting surface seems to sink in the abdominal cavity, while the superficial small extremities readily present

themselves to the hand; this condition of things results from the bending of the fœtus on its dorsal plane.

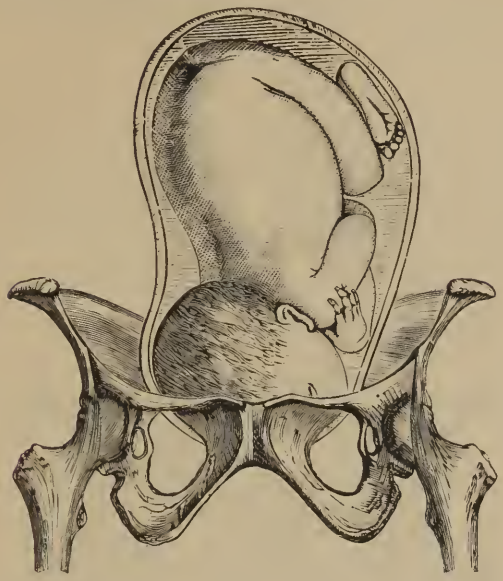


Fig. 13.—Presentation of the face, mento-iliac left posterior. (Presentation at the commencement of labor.)

When palpating properly, we may quite readily examine one of the lateral planes, and do not fail to recognize that the more accessible part of the cephalic sphere is in relation with the back; moreover between the back and the head, especially when the labor is well advanced, there is a depression into which the fingers may at times easily penetrate. Thus, the presence of the cephalic extremity at the superior strait, the prominence of that extremity at certain parts of the pelvis, and the back in relation with that prominence are the sensations perceived which enable us to make the diagnosis.

According to Dr. Budin, in certain cases, upon the side opposite to the accessible tumor, we may feel a prominence, having the form of a horse-shoe, distinctly characteristic of and constituted by the inferior maxilla and the chin. (1)

1. Budin, *De la tête du fœtus.* Th. de Paris, 1876, pp. 51.

The pathognomonic sign of this presentation as obtained by palpation, consists in the presence of the accessible portion of the cephalic extremity and the back upon the same side.

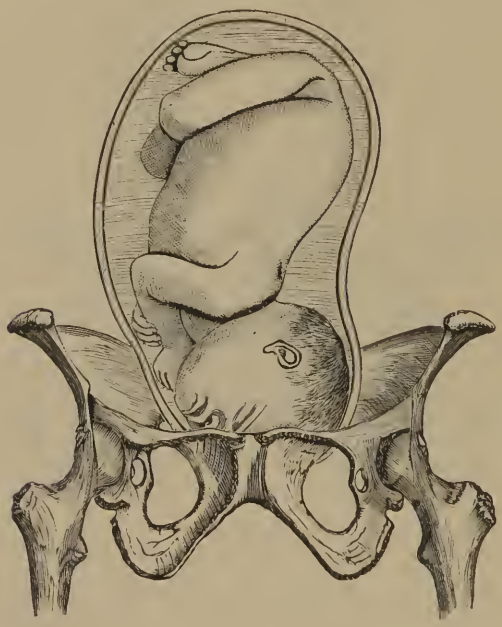


Fig. 14.—Presentation of the face, mento-iliac right anterior. (Presentation at the commencement of labor.)

The diagnosis of the presentation, and of the varieties of the position, correspond exactly with those of the vertex, according to the anterior, lateral, and posterior situation of the occipital region and the back.

But I repeat, this examination has no importance, except when the high position of the presenting part renders vaginal touch difficult or impossible. Ordinarily, the dilatation of the os, and the engagement of the fœtal part, render the results by touch more immediate, and indeed, I may say, easier than by palpation.

## SENSATIONS FURNISHED BY PALPATION IN THE PRESENTATION, THE POSITIONS AND THE VARIETIES OF POSITION OF THE BREECH.

*Presentation.*—In cases of breech presentation when examined during gestation, the hands find the pelvic excavation empty. More than this, it may only be possible to find the small parts at the level of the superior strait. Above the superior strait we may distinguish the presence of a large extremity in relation with the false pelvis.

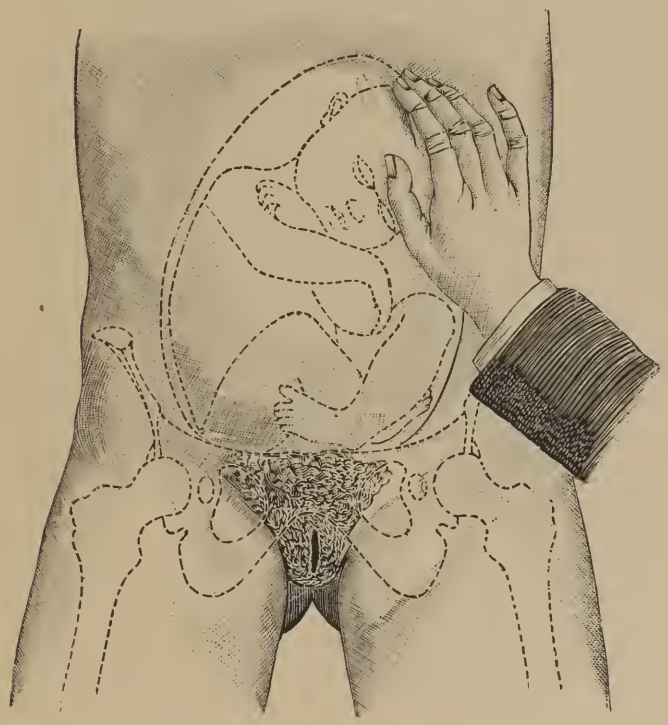


FIG. 15.—The hand depressing the abdominal wall to obtain the sensation of cephalic ballottement.

I may here remark that the breech is rarely over the opening of the superior strait; it is nearly always found partly in relation with one of the iliac fossæ and partly over the brim. I do not insist upon the palpable characters of this extremity; it will suffice to say that it always appears voluminous, and that sometimes the small parts are quite accessible, whilst at others they are concealed from examination.

The head is at the fundus uteri, generally inclined to that side opposite the iliac fossa occupied by the breech. When the head is situated directly under the median line, it may be readily mapped out, and its characteristics appreciated with great distinctness; moreover, it is very easy to produce and perceive ballottement, by making a slight, sharp depression over the abdominal wall in relation with the head.

But it is not always so; for sometimes the head is deeply situated, and we have no power over it whatever; and at other times it may be completely hid under the false ribs. This is especially observed among primiparæ in those breech presentations which I term "*frank*," when the uterus, being laterally compressed, developes altogether in its longitudinal diameters, In such cases we should move the fœtus, or make it gradually change its position, by pressing inversely upon its two poles, or only upon its inferior pole if the superior one is inaccessible, in such a manner as to place the head under the median line, or on the contrary to make it descend a little lower towards one side; in a word, it should be rendered more superficial, and at the same time more accessible, more *palpable*.

In fine, I shall insist upon a last point which may be useful, and I believe of sufficient importance in connection with the differential diagnosis between head and breech.

When depressing the abdominal wall in relation with the fœtal trunk, we not only perceive the resisting plane of the body contained within, as a connecting surface between the breech and trunk, but also a depression, or well marked space between the trunk and the head, where the fingers sink down to the level of the cervical region.

*Positions.—Sacro-iliac left anterior.* The left iliac fossa is occupied by a large irregular extremity, accompanied or not by the small parts: this is the breech.

The head is at the fundus uteri, but generally in the right flank, sometimes quite superficial, very often, however, hid away and concealed under the liver. The resisting plane is in front, directed from below upwards and from left to right, starting from the left iliac fossa and at times rising directly on the left side, to curve over towards the right above the umbilicus, at others, being directed immediately towards the right flank, traversing the abdominal wall diagonally until it disap-

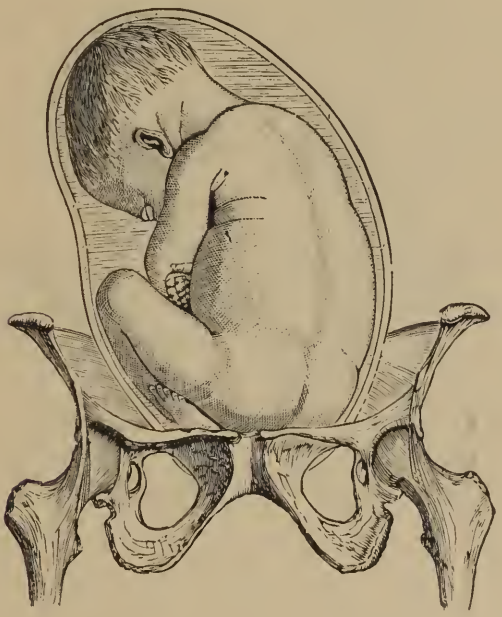


Fig. 16.—Presentation of the breech, sacro-iliac left anterior.

pears and becomes inaccessible about a few centimetres above the umbilicus; but up to that point it is quite easy to circumscribe.

*Sacro-iliac right posterior.*—The right iliac fossa is occupied by a large, irregular extremity, nearly always accompanied by the small parts, which may be felt to the left and in front.

The head occupies the fundus uteri, generally inclined to the left. It is easier to circumscribe than when it is situated on the right side. The resisting plane on the right side is directed posteriorly; it appears quite narrow, for we can explore but little else than the right lateral plane and not the back of the fœtus.

The small parts, and the elasticity of the liquor amnii are readily found anteriorly and to the left.

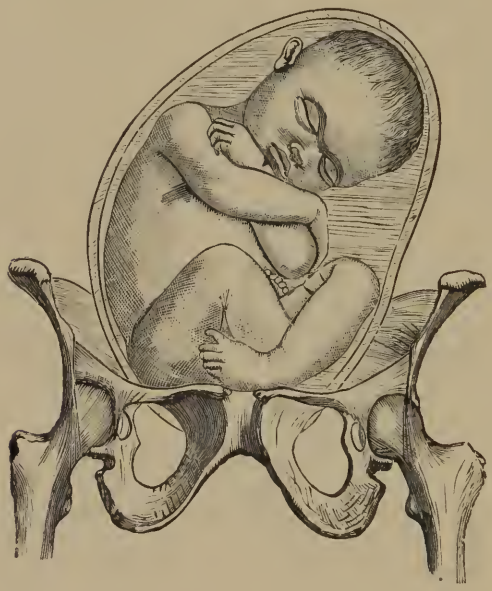


Fig. 17.—Presentation of the breech, sacro-iliac right posterior.

*Sacro-iliac right anterior.*—The right iliac fossa is occupied by a large, irregular extremity, which is rarely accompanied by the small parts. The head is situated in the fundus uteri generally inclined to the left.

The resisting plane is found on the right side, and is directed anteriorly. Starting from the right iliac fossa, and at times rising up directly on the right side, to curve over towards the left, above the umbilicus, at others it is directed towards the

left flank, traversing the abdominal wall obliquely. In every case it is quite easy to circumscribe it, and to catch it, so to say, between the two hands.

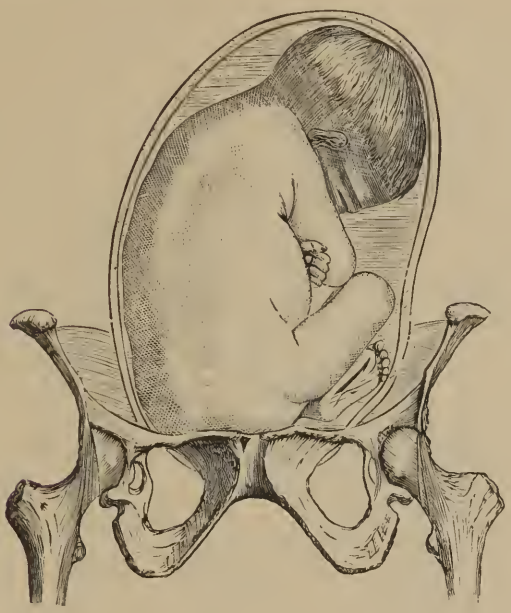


Fig. 18.—Presentation of the breech, sacro-iliac right anterior.

The elasticity of the liquor amnii is perceived both below to the left, and above to the right. The small parts are found to the left and behind.

*Sacro-iliac left posterior.*—The left iliac fossa is occupied by a large, irregular extremity, nearly always accompanied by the small parts, which are found to the right in front. The head is situated in the fundus uteri, generally inclined to the right side, and somewhat difficult to circumscribe.

The resisting plane is felt on the left side directed posteriorly; it appears quite narrow, for we can explore but little else than the left lateral plane and not the back of the fœtus. The small parts and the elasticity of the liquor amnii are readily found

anteriorly and to the right. This elasticity can be equally well perceived at the fundus uteri to the left.

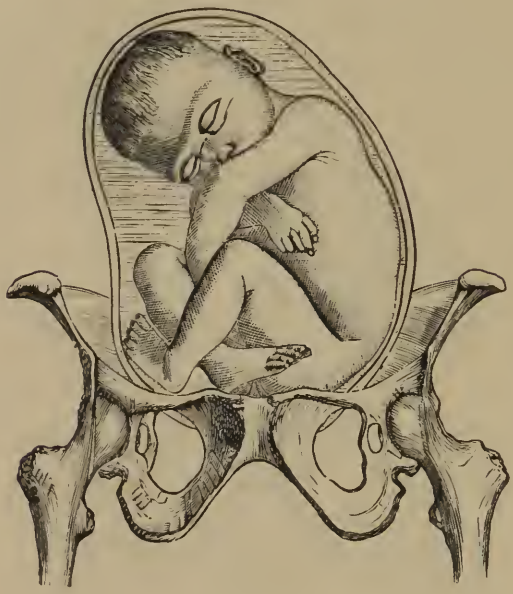


Fig. 19.—Presentation of the breech, sacro-iliac left posterior.

## SENSATIONS FURNISHED BY PALPATION IN PRESENTATION OF THE TRUNK.

As I have already said, I have never met with shoulder presentations during gestation, except in dorso-anterior positions. Relying upon that fact and still more upon the anatomical relations of the maternal and fœtal parts, I am of the opinion that if dorso-posterior positions do occur at all during gestation, they are observed only exceptionally.

Indeed, even during labor these positions are equally rare,

as is proved by the statistics of Madame Lachapelle, (1). This authoress explains the rarity of these positions as depending upon the natural attitude of the fœtus, (2).

*Presentation of the right lateral plane; left cephalo-iliac or left acromio-iliac position.* (3)

*During gestation.*—The excavation is empty. The hands meet with the inferior extremity of the fœtal ovoid (the head) under the form of a round tumor, regular and hard, occupying the *left iliac fossa*, and in multiparæ often ballotting.

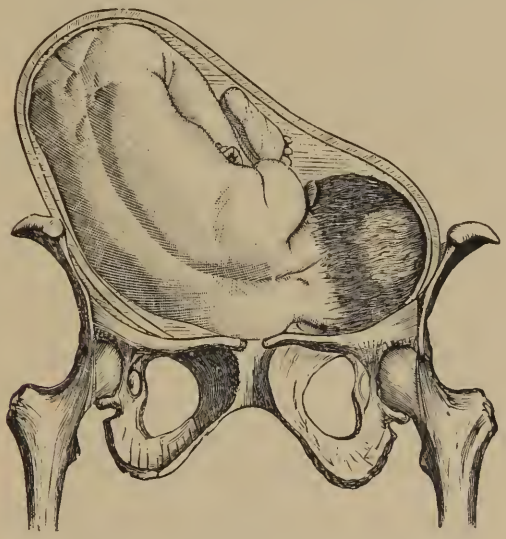


Fig. 20.—Presentation of the right lateral plane (right shoulder) left cephalo-iliac.

*In the right flank*, more or less high, according to the development of the abdominal cavity, at times hidden under the false ribs, in relation with the inferior face of the liver, is found the breech with its characters. The resisting plane extends

1. Lachapelle, *Pratique des accouchements.* Fig. of 1st. and 2d. vols.
2. Lachapelle, *loco citat.* Vol. 11, p. 188.
3. I here give this synonym, because in the figures the relations of the head to the iliac fossa are better seen than those of the acromion.

from the left iliac fossa to the right flank, following a line curved towards the region of the large pelvis, and rises up above the iliac crest, (see Fig. 20.) Sometimes the resisting plane looks directly forwards, and then in exploring the excavation, it is not rare to meet with a small projection formed by the right shoulder, which is found immediately above the superior strait, and which seems to sink behind the horizontal rami of the pubes. Sometimes the resisting plane is directed almost exactly below, and then it is of less extent; we can examine the left lateral plane only. Whichever of these two varieties, or rather of these two shades of variety exist, above this resisting plane and over the superior extremity of the fœtal ovoid, we can only perceive the elasticity of the liquor amnii and the sensation of several small parts.

*During labor.*—As has been well remarked by Prof. Herrgott, when the membranes are ruptured, the fœtus being compressed on all sides, but especially about its two extremities, it redresses itself. The two poles of the fœtal stem, approach towards the median line, and then palpation gives the following sensations: The iliac fossa is occupied by a large spherical tumor, whilst that extremity situated in the fundus uteri is drawn towards the median line and the resisting plane is directed nearly vertically, although always inclined more to the right than to the left side. In fine, the curve of the resisting plane has disappeared, and the spherical tumor of the iliac fossa seems to articulate at right angles with it.

*Presentation of the left lateral plane: right cephalo-iliac position.*

*During gestation.*—The excavation is empty. The hands meet with the inferior extremity of the fœtal ovoid (the head), under the form of a round, regular and hard tumor, occupying the *right iliac fossa* and ballotting, especially in multiparæ. The breech is found in the *left flank*, more or less high, according to the development of the abdominal cavity, sometimes in relation with the false ribs.

The resisting plane extends from the right iliac fossa to the left flank, following a line curved towards the region of the large pelvis and then rises up above the iliac crest, (see Fig. 21.)

The resisting plane looks directly forwards or below, as I have already pointed out for the similar presentation of the right shoulder.

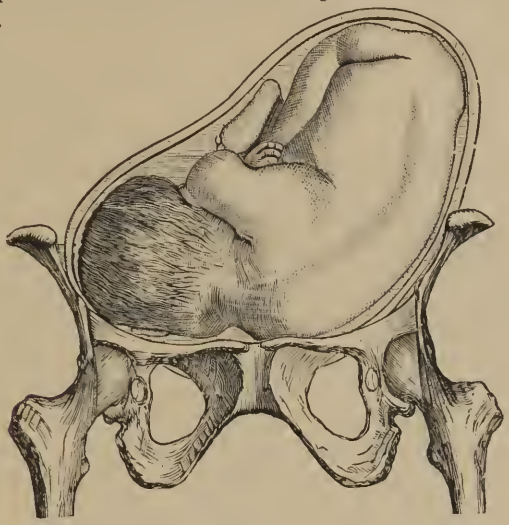


FIG. 21.—Presentation of the left lateral plane (left shoulder) right cephalo-iliac position.

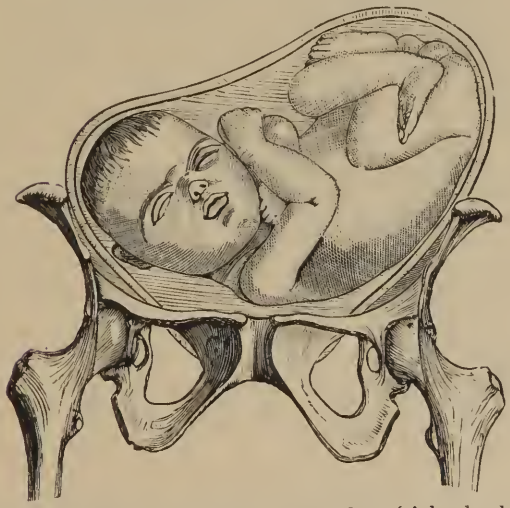


FIG. 22.—Presentation of the right lateral plane (right shoulder) right cephalo-iliac position. (Presentation at the commencement of labor.)

Over the entire abdominal region, extending above and within the resisting plane, we can only perceive the elasticity of the liquor amnii and the sensation of several small parts.

*During labor.*—When the membranes are ruptured, modifications in the direction of the trunk are produced, after the same manner that I have pointed out above. The resisting plane is directed vertically, although approaching towards the median line, it still occupies the left side of the abdominal cavity.

*Presentation of the right lateral plane: right cephalo-iliac, and of the left lateral plane: left cephalo iliac.*

I shall say but a few words relative to abdominal exploration by palpation in these positions, for they are produced only during labor, and the uterus contracting upon itself every instant during that period, palpation becomes difficult, sometimes impossible, while vaginal touch may give results decidedly more distinct, by reason of the dilatation of the os, and the engagement of the fœtal presentation which is then somewhat more pronounced.

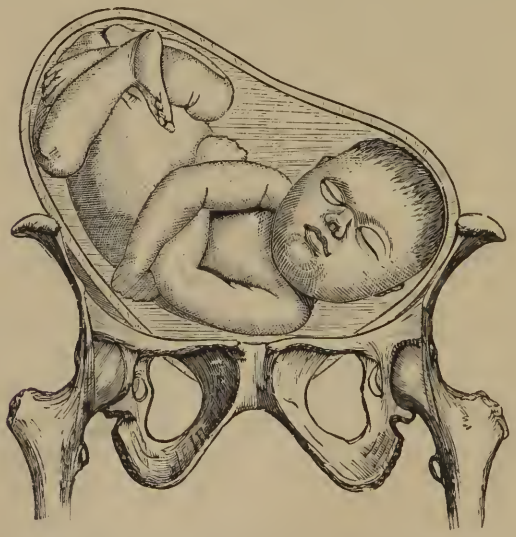


FIG. 23.—Presentation of the left lateral plane (left shoulder) left cephalo-iliac position. (Presentation at the commencement of labor.)

When palpation is practiced in the interval between uterine contractions, we find only two things of importance: viz. The inferior extremity of the fœtal ovoid under the form of a spherical tumor, in one of the iliac fossæ, the superior extremity, under the form of a large, irregular tumor occupying the fundus uteri.

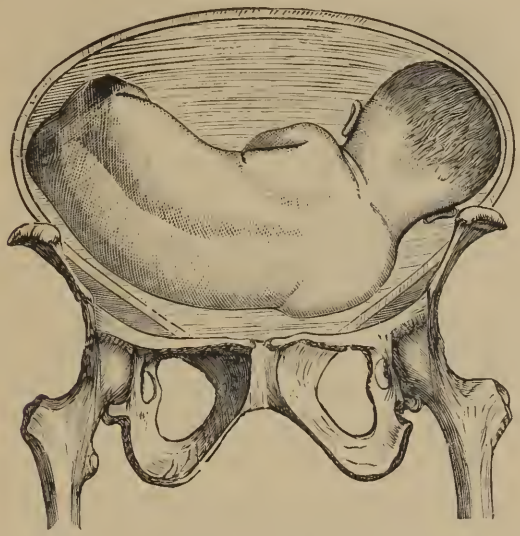


FIG. 24.—True transverse presentation disappearing at the moment of labor.

The resisting plane is difficultly accessible, while the small parts are superficial and are felt with facility.

As I have said, in treating of accommodation, the fœtus curved in the arc of a circle rests in the large pelvis, the head and breech being found on each side respectively, immediately above the iliac fossæ.

In three cases, one of which was with M. Tarnier, have I been able to verify this fact. In this case palpation revealed the excavation empty. The resisting plane extended into the region of, and above the iliac fossæ, while the two extremities of the fœtus were found, the one in the right flank, the other in the left. The differential diagnosis of each extremity is readily made, it suffices merely to find the proper characteristics that

belong to the head and the breech, and especially to determine which extremity ballots. At the moment of labor these presentations change, either into presentation of the shoulder, or of the breech, or even of the vertex.

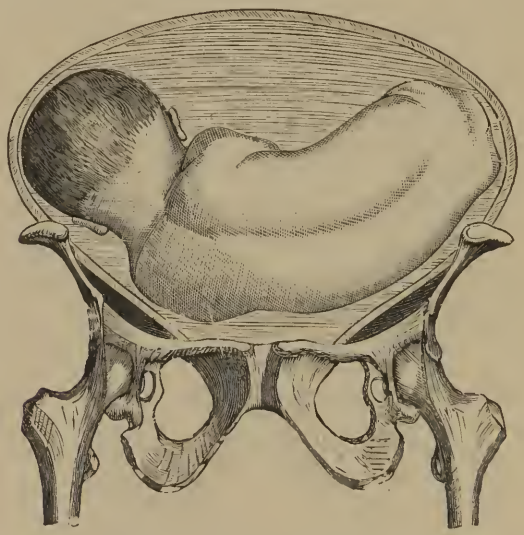


FIG. 25.—True transverse presentation disappearing at the moment of labor.

## DIAGNOSIS OF MULTIPLE PREGNANCY BY PALPATION.

Upon uncovering the abdomen of a pregnant woman, very often the attention is immediately attracted by its appearance. The abdominal development appears exaggerated, or the supra-pubic region is the seat of a localized œdema, or finally one recognizes a bilobed and irregular form of the uterus, even when that organ is entirely relaxed. Should these conditions not be perceived, there is still one thing that I believe will generally strike one, who begins to examine by palpation, a uterus containing several products of conception; *i. e. the permanent tension of the uterine wall.* The sensation which one perceives although somewhat difficult to describe accurately, is readily

appreciable to those, who are a little accustomed to this method of exploration. Instead of depressing the uterine wall with facility, one perceives that this wall is tense and resisting. It is a sensation analogous to that, which we experience by depressing the wall of a bag of caoutchouc distended with fluid or air. It is not that soft, doughy sensation, which is perceived upon depressing the relaxed uterine wall when the organ is normally filled; neither is it that hard sensation, almost ligneous in character, which is felt upon depressing the uterine wall during a contraction; it is a sensation intermediate between this and one that is well known to physicians, which is perceived upon depressing the wall of a distended cyst. I lay stress upon the point, that this permanent tension of the uterine wall is met with in two classes of cases only, viz.: multiple pregnancy and hydramnion. Therefore, clinically considered, this sign becomes of veritable importance. Upon the recognition or not of this sign, the knowledge obtained by palpation is evident. A first fœtal pole, the inferior one, is found either in the excavation or in the iliac fossa. A second, or superior one, is found in the fundus uteri or in one of the flanks.

The contained resisting plane, is alike easily found and recognized. Up to this point, not inclusive of the sensation imparted by the uterus, and the consequently slightly increased difficulties to palpation, the signs have thus far been furnished by one single fœtus; but upon depressing the abdominal wall on the side opposite to the one occupied by the resisting plane, instead of recognizing the small parts, we find another large extremity, or even another resisting plane. We should, then, most carefully explore the two iliac fossæ, and the superior uterine segment. Generally the two large extremities are found either above or below. But at times, it happens in certain cases, that we readily arrive at the recognition of the presence of four fœtal poles, two inferior and two superior, while at other times it is only possible to distinguish three; the fourth large extremity being deeply situated, is concealed behind another which lies over it in front.

It is, then, easy to distinguish two resisting planes, and the presence of the small parts in several regions of the uterus at the same time. Thus proceeding with gentleness, in order not

to displace the fœtus, the presence of two large extremities, corresponding with the superior and inferior abdominal regions, points immediately to the diagnosis. While appreciating the difficulties which may, at times occur and which are due both to the tension of the uterus and the œdematous infiltration which renders the abdominal wall so much thicker, it is none the less true, that a diagnosis made methodically is generally very easy. En résumé, the large extremities or the poles of the fœtus, are the parts upon which the examiner should concentrate his attention Knowing the laws of accommodation, I consider that it will be very simple, when finding the excavation filled and one or other large extremity distinctly mapped out in an iliac fossa, to deduce therefrom that this is a condition of things that does not exist in ordinary pregnancy.

The examination of the superior uterine segment will then readily demonstrate the presence of two large extremities, the one more elevated than the other. If the excavation is empty and two large extremities should be found in the false pelvis, the deduction will be similar. Proceeding after this fashion during my service at the maternity, I was enabled to recognize and confirm the presence of twins in thirty-two cases. I was also able to recognize by palpation a triple pregnancy (the only one which I have ever met with) in a woman who, during the course of her pregnancy, had come to be treated for inflamed varices of the lower extremities. I do not know that the diagnosis of triplets has ever been made during gestation, so, I am of the opinion that this observation, which I give in detail, goes still further to demonstrate the superiority of palpation over other methods of exploration now in use.

During the services of M. Guéniot under M. Depaul, "F." entered the obstetric clinic towards the middle of September, when she was about five months advanced in pregnancy, on account of enormous varices in the anterior superior part of the left thigh. These varices became inflamed and caused great suffering. For the first few days following her entrance, attention was directed only to the phlebitis, which by simple rest, was perfectly cured. But a little later she was examined more carefully with regard to her pregnancy, when it was recognized

that the size of her abdomen was relatively exaggerated for the period of her pregnancy.

Upon interrogation, the woman informed me that her husband was a twin, that his grandmother was delivered of twins in her forty-second year, and moreover his sister was one of a twin pregnancy. Palpation was then practiced with great care; at first I found a small head tending to engage in the excavation; very soon another head was distinctly perceived above; two resisting planes were found, one below and to the left, another above and to the right, and the small parts everywhere. Auscultation repeated very often, only revealed a maximum intensity of fœtal heart sounds to the left and below, and another to the right and above. Vaginal touch demonstrated a small head commencing to engage.

A few days subsequent to my first examination, I could, by palpation, distinctly make out three heads, which of course indicated the presence of three children in utero. One head was in the excavation, a second was in the right iliac fossa and still a third above and almost under the median line, but extremely movable. At no time could I find three auscultatory centres. After this, I repeatedly found at each examination the three heads, which were also recognized by some of the students. (1.)

This woman, in whom the last menstrual period had appeared from the 15th to the 2 :th of April, was delivered on the 1st of December following of three boys, all three presenting by the vertex.

## SENSATIONS FURNISHED BY PALPATION, IN THE CASE OF PREGNANCY COMPLICATED BY HYDRAMNION.

Whenever the quantity of liquor amnii decidedly exceeds the usual amount, not only does the ovoid form of the pregnant uterus become more pronounced, but also does the supra-

1. However, I was informed by Dr. Budin, that palpation became very difficult towards the end of her gestation, on account of the tension and œdema of the abdominal wall.

pubic region become the seat of an œdema just as marked as in the case of multiple pregnancy. When the hands are applied over the abdomen, the constant tension of the uterine wall is immediately perceived. In methodically exploring the excavation, which is still possible, notwithstanding the resistance of the abdominal wall, one rarely finds the cephalic extremity. Usually in these cases the pelvic extremity offers during gestation, but indeed I may say, that there is no real accommodation at all. The fœtus, generally small, being contained in a distended cavity, is not necessitated to take any fixed and determined attitude, so that we often find changes of presentation extremely frequent and rapid, even up to the very moment of rupture of the membranes. It may happen that in the examination of the abdominal wall, no distinct sensation of fœtal resistance is perceived, even when we depress those regions generally corresponding with the extremities of the fœtal ovoid. Nothing is perceived but a sense of elasticity and of fluctuation. It is then, absolutely necessary to practice palpation with the greatest delicacy, for the slightest pressure will displace that part of the fœtus in relation with the uterine wall. Here the sensation of ballottement is exaggerated, for the slightest shock displaces the fœtus. It is on this account that it is so difficult to hear the pulsations of the fœtal heart in a case of hydramnion, for the mere pressure of the stethoscope is sufficient to displace the fœtus, just as we know it may very readily occur, when the fœtus is small and the uterine cavity spacious.

Therefore, I insist upon these few points, viz.: that in certain conditions palpation carelessly practiced may give only negative results, auscultation is likewise barren, and even vaginal touch merely enables us to recognize the changes in the neck, and an engagement more or less pronounced of the inferior uterine segment, which contains nothing but fluid. One can then determine in a woman who seems to have arrived near full term, only signs of probabilities but not of certainty. In exploring the abdominal wall over its entire surface, one will always find a certain point in relation with the fœtus, *i. e.*, at the very beginning of the examination a resistance is experienced in one part greater than in any other, and by gradually pressing over

this point a solid movable body, floating in liquid, is felt. This sensation may be either single or double, *i. e.*, it may be that of a body which merely recedes from the touch, or recedes and soon returns, thereby gently striking against the utero-abdominal wall. Thus, the permanent tension of the utero-abdominal wall and the œdema of the supra-pubic region are signs common alike to multiple pregnancy and hydramnion. But the differential diagnosis is generally easy to make. In cases of multiple pregnancy, notwithstanding this tension, we can readily follow out the fœtal surfaces; the situation is, if not fixed and constant, more or less stable, while the abnormal mobility of the fœtus, in a woman already in an advanced period of pregnancy, will immediately direct us towards the diagnosis. It may occur in cases of multiple pregnancy, that the products of conception being contained in separate and distinct sacs, we may recognize hydramnion of one sac only. Here the fixed position of the fœtus in the normal sac, and the extreme mobility of the other, are quite apparent. This abnormal mobility of one of the fœtus and the stability of the other, has enabled me in several cases to diagnose the separate sacs and give a prognosis favorable in proportion to the normal conformation of the two products of conception. We are well aware how frequently these malformations of the fœtus occur in hydramnion.

## SENSATIONS FURNISHED BY PALPATION WHEN THE FŒTUS IS DEAD AND MACERATED.

When the fœtus dies in the uterine cavity, it undergoes certain modifications or rather transformations, which develop in proportion to the duration of its retention, prior to its being cast off. All its tissues soften and its characteristic form is lost; there is no longer the fœtal ovoid, but a dead, shapeless mass. Likewise, the sensations perceived by palpation are altogether different from those manifested by the living fœtus. But in order that this marked and appreciable difference in sensation should present, it is necessary that the death should occur at least eight days prior to the examination. This was the least

time in which these changes resulted in two observations where I was able to ascertain the date of the death of the fœtus, and practice palpation every day up to the time of its expulsion, which occurred in the first case on the 16th day, and in the second on the 23d. During the first few days subsequent to death, there is but little alteration in the sensation, especially when the fœtus is accommodated, *i. e.*, when the head is sunk in the excavation. The cephalic resistance is still distinctly perceived and it maintains its characters for 5 or 6 days.

Should it be the pelvic extremity, however, these alterations are less marked, but the displacement of the part becomes more and more easy; finally it seems to approach near to the cephalic extremity, the trunk curving over or rather being depressed upon itself. When, on the contrary, death has preceded the accommodation, a few days subsequently we find the fœtal mass heaped together and crowded in the inferior uterine segment.

Thus, when practicing palpation in these conditions, we can only make out an indistinct resistance at the level of the excavation and even upon depressing the inferior uterine segment the sensation is the same; while on the other hand in the superior segment the resistance of the liquor amnii is very distinct.

An almost horizontal line separates distinctly the region where we find the soft, doughy resistance, from that where the normal fluctuation is apparent.

## SENSATIONS FURNISHED BY PALPATION IN DEGENERATED PREGNANCIES (HYDATIFORM MOLE, VESICULAR DEGENERATION OF THE VILLOSITIES).

As I have only had one single occasion to palpate a woman bearing a vesicular degenerated ovum, I have as yet but little experience upon this subject. Here palpation enabled me to determine an enormous development of the uterine cavity, relative to the supposed period of pregnancy. Several times during the examination I felt the uterus contract under my

hands, and, naturally, it was impossible for me to perceive the least fœtal resistance, the mole not being embryonic. I was also unable to find the rounded prominences, the deep or superficial furrows pointed out by the authors. I merely found the resistance of the doughy mass and nothing else.

To recognize the coincidence of these two conditions, viz., the development of the uterine cavity containing a jelly-like mass or a liquid, and the entire absence of all solid parts, is exceedingly important, and, in a number of cases, will, alone, direct the physician upon the way to the diagnosis.

# PART II.

## THE MEANS TO FIX AND ENGAGE THE FŒTAL HEAD DURING THE LATTER PERIOD OF GESTATION, AND THE DEFINITE TRANSFORMATION OF THE PRESENTATIONS OF THE SHOULDER AND OF THE BREECH INTO PRESENTATIONS OF THE VERTEX DURING THE SAME PERIOD.

In view of the dangers that surround the child during labor when it presents by its pelvic extremity, and the grave accidents both to mother and child in presentations of the shoulder, there is not a practitioner who does not dread to meet such cases.

Therefore obstetricians have already for a long time sought to diminish the mortality in these cases, either by a never ceasing endeavor to perfect those operations which are resorted to under such circumstances, or by trying to find some prophylactic treatment; herein recognizing with Wigand that "the very ideal of every science and of every art, the very goal of all our efforts should be to render such operations useless; that true obstetrics should not only be occupied with the means and proper methods of correcting an abnormal fœtal situation, but that she should go a step farther, and endeavor to render such abnormal situations impossible."

To effect the total disappearance of these presentations, has, indeed, been the dream and the goal of all eminent accoucheurs. And I am happy to say, and loudly proclaim, that a number of women and children owe their lives to the means extolled by these authors, which means, although imperfect, have nevertheless often been employed with success. Observing how nature herself sometimes corrects one of these errors, obstetricians have sought to imitate her; and it is thus that version by external manipulations has been introduced. Having

noticed what happened in those cases of so-called spontaneous version, Wigand applied himself to the attentive study of these extraordinary changes, and observed, that the simple lateral decubitus of the woman, the pressure which she makes upon her abdomen during labor, to sustain and bear up against it, a single or several efforts at coughing or sneezing, or other similar actions, has had a very great influence upon the presentation of the child. "What I have so often seen occur spontaneously," said he, "I shall try to produce myself."

That beautiful operation, version by external manipulation, was made, then modified and finally perfected!

A remarkable man, whose recent decease science deeply laments, Hubert de Louvain, without knowing the labors of Wigand, arrived at the same result forty years subsequently; he recognized the same operation, facilitated its procedure and rendered its application more frequent. Wigand and Hubert had applied external version only to cases of shoulder presentation; Matteï, of France, (1856), was the first to announce the possibility of transforming breech into vertex presentations, and the theory was immediately applied with practical success. I certainly try to render justice to all, as is shown in the chapter devoted to the history of this subject, but I first cite these three names, because they truly deserve to be separated from a large number of their imitators, for they not only perfected the operation, but really made it. It might be thought, that after this epoch, version by external manipulation, on account of the success accredited to it from the very beginning of this century, had now become popular with the profession, but this would be quite erroneous.

It is still very little employed, even up to the present day, and when in the medical world one speaks of version, it is podalic version by internal manipulation that immediately arises in the mind of the practitioner. At first this might seem strange, but, upon reflection, it becomes readily explicable.

To wit, following Wigand, obstetricians have sought far more to imitate nature by correcting a bad presentation at the moment of labor, than by using the means then normally employed by nature herself, *i. e.*, means to produce a vertex presentation. Thus do the following lines, so just and true, from

the pen of a man whose genius has always been so extensively devoted to the progress of science, thus do these lines, I say, which seem to impress upon us the uselessness of version by external manipulation, and bring to bear against it a judgment without appeal, force us to give the true reason why it has been abandoned, or practiced merely at hap-hazard. "During gestation, when the uterine contractions are feeble, and when the uterine walls can be easily depressed, one may readily change an unfavorable presentation by pressure exerted over the fœtal parts; *but these manœuvres are inadequate to maintain the new presentation.* To effect this result, it becomes necessary, as Wigand has said, to employ other forces, which for the most part are not in the power of the accoucheur, but depend entirely upon the uterus. This organ, in contracting upon itself, clasps the fœtus in such a manner as to immediately modify its position and hinder it from reassuming its former attitude. But in the absence of these contractions, or when they are irregular and spasmodic, it is true, one may still by the aid of external manipulation, cause the child in utero to take any position he may desire, it will, however, resume its unfavorable position as soon as these manipulations cease." (1.)

In a word, then, accoucheurs have recognized that version by external manipulation is possible, indeed easy, but for the most part inefficient during gestation, and that during labor it is often difficult, sometimes impossible, and nearly always dangerous. And so, version by external manipulation remained in this unfavorable light. Finally, on account of another reason, the indications for this operation became extremely rare; I allude to the imperfect knowledge of palpation, the only means of physical exploration which can really instruct the accoucheur prior to labor, whenever auscultation and vaginal touch give no exact information of the situation of the fœtus in the uterine cavity.

To-day version by external manipulation should depart from this unfavorable prejudice pointed out above, for it *can* render efficient service during gestation, the very time when the most favorable conditions for its performance exist.

1. Tarnier. "Atlas complémentaire de tous les traités d'accouchements." Paris, 1862.

Secondly—Its application should become relatively frequent and moreover it should be employed whenever indicated, for now, thanks to palpation, we know exactly the attitude of the fœtus a long while before the inception of labor.

In the following chapters I shall study version by external manipulation, with regard to its history, its method of performance, its indications, and contra-indications, and finally the means to be used to render it efficient during gestation.

## HISTORY OF VERSION BY EXTERNAL MANŒUVRES. (1)

Suspected by Hippocrates, conceived by Jacob Ruff (*Opera de conceptu et generatione Jacobi Ruffi.* Francofurti ad Mænum, 1580), and Mercurius Scipio (*La commare o raccoglitrice*, 1604), the discovery of version by external manœuvres, as has been justly said by M. Nivert, belongs by right to Wigand, the accoucheur of Hamburg.

Wigand, having observed several cases of spontaneous version, undertook to produce for himself what he had seen occur spontaneously. "I have not applied myself," says he (2) "solely to the modification of the *presentation of the child by position* of the woman during labor, but also by *gradual external pressure over the abdomen and uterus*,

A number of credible observations and researches instituted for this object had already enabled me to demonstrate the influence of the position of the woman on the presentation of the child.

I had still some doubts as to the results that may attend *external* pressure over the abdomen alone. On several occasions had they appeared to prove efficacious and useful. I remembered cases of version by the ordinary method in which

1. For the entire history of this subject I have made a number of extracts from the remarkable works of Nivert: "De la valeur du palper abdominal," memoir crowned by the Central Society of Medicine of the department of the North, Lille, 1866.

2. *De la Version par Manœuvres externes*, by Wigand, translated by Prof. Hergott, Strassburg, 1857, p. 5.

I had recourse to the introduction of the hand in utero, and aided this hand within, by pressure exerted over the abdomen, where these manœuvres had decidedly hastened the success of the operation."

The *possibility* as well as the *harmlessness* of changing the child's position by external manœuvres having appeared to him sufficiently demostrated, Wigand then studied:

" 1°.—What are the *cases* and the *conditions in* which and *for* which a change of the presentation of the fœtus, by means of simple pressure or other external manœuvres are possible and should be advised?

2°.—In these cases, *how* should the external manœuvres be made, *by what means* should they be aided, and *at what time* should they be employed?"

*Necessary conditions for practicing version by external manœuvres according to Wigand.*

" The *first* essential is that the waters be not yet evacuated, or if that has already occurred that it be but a little while before the operation, and be not complete.

" A *second* very important condition for the possibility and practicability of external version is the persistence of the *pains* or *uterine contractions* which should be neither *too feeble*, *irregular*, or *spasmodic*.

" The other *conditions* in which version by external manœuvres should be undertaken only with great prudence, are: *Hemorrhages* from the genital organs, *convulsions*, or repeated *syncope*, *persistent vomiting*, *rupture of the uterus or vagina*, *rheumatic pains*, or *inflammation of the uterus*, *premature placental separation*, *&c.*, *&c.*

" *Contra-Indications from the fœtus.*—The first contra-indication of version by external manœuvres is *prolapse of the funis*.

" The *second*, twin pregnancy.

" The *third*, *convulsions of the child*, hydrocephalus, ascites; cases, which without version, always, or at least ordinarily, demand the prompt intervention of art.

*Indications.*—All abnormal presentations not requiring accouchement forcé.

"*Rules and general directions:*

1°.—"Before all, we must seek by every possible means, by internal as well as external exploration, to obtain an exact idea of the presentation and position of the fœtus in utero.

2°.—"We should place the woman on that side corresponding to the pole of the fœtus we wish to engage in the brim.

3°.—"Being accurately informed of the abnormal position of the fœtus, we should make that part nearest to the superior strait descend to the pelvic brim.

4°.—"By external manœuvres we should try to direct towards the uterine orifice that part of the child which should present.

5°.—"As soon as we perceive, by vaginal touch, that the descent of the head or breech over the uterine orifice has been already effected, we should then rupture the membranes in order to fix the child in this better position by the compression which the uterine walls exert upon it.

6°.—"When the waters have escaped, not only should the woman remain quiet and immovable, and maintain the same decubitus, but the abdominal walls should be compressed upon both sides, strongly enough, and long enough for the presenting part to sink so deep into the excavation, that it will henceforth be impossible for the fœtus to resume its primitive position."

Wigand then studied the particular manœuvres in each individual case, and ended by showing the advantages of the new method over the old.

From the above, we see that the rules which should guide the accoucheur are distinctly formulated, and the principles determinately laid down.

Therefore, it is not surprising to read in the preface to the translation, by Dr. Hergott, the following lines from the dean of the faculty of Nancy:

"This book contains more truth, and more useful and practical precepts, than are usually found in books of twice the number of pages."

In Germany, accoucheurs, well appreciating the importance of this operation, place it in the domain of practice, and devote special chapters to it in their dogmatic treatises. See

D'Outrepont (1), Ritgen (2), Seibold (3), Busch (4), Kilian (5), Rosshirt (6), Lumpe (7), Hüter (8), Grenzer (9), Scanzoni (10), Lange (11), Credé (12), Weissbrod (13), Kohl (14), C. Braun (15), Spaeth (16), G. Braun (17).

The cases in which this operation has been practiced successfully increase and multiply as is shown in the observations published by D'Outrepont, E. Michaelis of Kiel (18), and Ed. Martin (19).

Before giving an accurate idea of the opinion of German accoucheurs upon this operation, I cannot do better than quote the following lines extracted from Schröeder's Manual of Obstetrics (20), which will convey an exact appreciation of the modifications to the rules advised by Wigand:

"*Cephalic Version.*—Cephalic version should be performed only to improve a presentation, but never to favor extraction, because the head remaining above the superior strait, is not

1. D'Outrepont. *Abhandlungen und Beiträge*, T. I. Hamberg and Wurzburg. 1822; p. 138-147.
2. Ferd. Aug. V. Ritgen. *Anzeigen der mechanischen Hülfen bei Entbindungen*, Giessen, 1820, p. 411.
3. Ed. v. Siebold. *Lehrbuch der prakt. Entbindungskunde, Nuremburg*, 1821, § 339.
4. D. W. Busch. *Geburtsh. Abhandl.* Marburg, 1826, p. 42.
5. Fried. Kilian. *Operationslehre für Geburtsh.*, Bonn, 1834.
6. Eng. Rosshirt. *Die geburtsh. Operat.* Erlangen, 1842.
7. Ed. Lumpe. *Cursus der pract. Geburtsh.* Wien, 1843, p. 75.
8. Huter, *Encyclopädisches Wörterbuch der mediz. Wissenschaften.* Berlin, 1847, t. xxxvi., p. 80-285.
9. Naegelé's *Lehrb. der Geburtsh.* von W. C. Grenzer, Mayence, 1854.
10. Scanzoni. *Lehrb. der Geburtsh.* 3d Ed. Wein, 1855, p. 740-747.
11. Lange. *Lehrbuch der Geburtsh. f. Heb.*, 1851.
12. Crede. *Klinische Vorträg, üb. Geb.*, 1853.
13. Weissbrod *Leitfäden der geb. Klin.*, 1851.
14. Kohl *Lehrbuch der Geburtsh*, 1855. Leipzig, 1872.
15. C. Braun *Lehrbuch der Geburtsh.* Wien, 1857.
16. Spaeth, J., *Compendium d. Geburt. f. Studirende*, Erlangen, 1857.
17. G. Braun *Compendium der Operat.* Wein, 1761.
18. Kleinert *Allgemeines Repertorium.* Leipzig, 1838, p. 64 and 65.
19. Ed. Martin *Beiträge zur Gynaecologie.* 2. Heft. Jena, 1849.
20. Carl Schröeder. *Manuel d'accouchements*, translated by Dr. A. Charpentier. Paris, 1876, p. 296.

adapted to an immediate extraction. *We should, then, fix precise limits to the performance of cephalic version, and should never practice it under any circumstances requiring immediate delivery.*

"Moreover there are a great number of contra-indications of which only one, supposing the fœtus to be alive, merits any special consideration. This is the prolapse of the funis. Should the cord become prolapsed when the os is only a little dilated, it is better not to disturb either the child or the cord, for owing to the lateral inclination of the head, the cord is not compressed at all. But if the os is sufficiently dilated, we should choose the immediate termination of the labor by podalic version, in preference to the replacement of the cord and cephalic version. All the other contra-indications taken collectively, as many accoucheurs admit, have no value whatever.

"Generally, pelvic contractions would seem to render cephalic version impossible, yet very often at the beginning of labor, if the degree of contraction is only slight, it may be employed with advantage.

If the head is near the brim, it is of course an advantage, but it is by no means an indispensable necessity.

The integrity of the membranes facilitate the operation, but their rupture does not render it impossible. It is by no means really necessary that the pains be regular, especially when the os is but slightly dilated; indeed, if there are no pains, cephalic version is easy to perform, and the mere prolongation of the labor, after a vertex presentation has once been produced, is entirely harmless.

We should decidedly reject the idea that there is any need of complete dilatation of the os. As we have said, it is precisely when the os is but slightly dilated, that this operation may give results particularly advantageous.

"When we consider the indications for cephalic version, we should make a distinction between the different stages of labor.

' Matteï (1), Œsterle (2), G. Braun (3), Hecker (4), Hegar (5),

1. *Gaz. de Paris*, 1855, No. 2.
2. *Schmidt's, Jahrb*, Vol. CIV, p. 76.
3. *Allg., Wiener med. Zeit.*, 1862, No. 65.
4. *Klinik, der Geb.*, II, p. 141.
5. *Loc cit.*

have already recommended cephalic version during gestation.

"We may certainly accept this precept in the case where there has been occasion to practice touch during gestation, and that still more so, when the transformation of the presentation generally succeeds without difficulty. *Nevertheless, here we should not expect to derive great advantage from cephalic version, for precisely in the case where at the end of gestation the head does not present, the presentation of the child is usually of great variability, and consequently the vertex presentation which we have produced, has little chance of being maintained.*

"Cephalic version deserves especial consideration at the beginning of labor. If the os is still closed, or if it is at most passable for one or two fingers, except in certain cases, cephalic version should be preferred to podalic. And even when the pelvis is moderately contracted, it is not contra-indicated under such circumstances, because the head has still time enough to accommodate itself to the superior strait. It is only in the case of placenta prævia we should always prefer podalic version, because as the os is but slightly dilated the inferior extremities form a better tampon than the head.

"Both Matteï and Hegar have proposed to transform breech into vertex presentations, either during the latter period of gestation or at the beginning of labor. In general, the latter is more favorable for the child than the former, and as it is supposed that the transformation may be effected without great difficulty, we can have no serious objection to the method."

In Belgium (1843) Prof. Hubert de Louvain published a notable work upon the possibility of correcting abnormal presentations of the fœtus by external manœuvres. (1).

In reading this excellent memoir, one is soon convinced of the fact, that without knowing the works of Wigand, Hubert, by conceiving this operation, and by giving for it rules that were already so precise and simple, must have understood the

1. *Some clinical facts followed these reflections upon mal-presentation of the fœtus, and the possibility of correcting them by external manipulations.*

See *Annales de Gynœcologie et de Pediatrique*, Aug., 1843, p. 381, also *Encyclographie des sciences medicales.* July and Aug., 1843, and the reply by M. Hubert to M. Handricke (*Annnles de la société des sciences médicales et naturelles de Malines*, 1844. T. iii. p. 34).

accommodation of the fœtus during its intra-uterine life, better than all his predecessors, and at the same time must have thoroughly familiarized himself with external exploration. The following is a résumé of the teaching of the professor of Louvain upon this subject. (1)

" 1°.—External version should be performed preferably before the beginning of labor. If labor exist, it should be performed as early as possible. The contra-indications are few.

2°.—It may be successful, regardless of the amount of liquor amnii retained, and indeed even after the entire escape of the waters.

3°.—We should push towards to the pelvic brim that pole of the fœtus which is least distant.

4°.—For a successful result it is absolutely necessary (*a*) to have the abdominal walls in a state of most complete relaxation, the woman lying upon her back with the thorax and hips a little elevated, (*b*) to operate during the interval between the pains.

" *Method of Operating* :

" Place the woman in the dorsal decubitus, the thighs being flexed upon the pelvis and the thorax slightly elevated

" Supposing a shoulder presentation exists, the head being in the left iliac fossa, and the breech in the opposite flank, then operate as follows :

Stand to the right of the woman, about the region of her thighs, and choosing the moment when tha uterus is thoroughly relaxed, apply the two hands above and outside of the cephalic tumor and catch this latter between the finger tips.

Pressing the hand down deep in order to prevent the head from sinking behind it, the head is by gentle and gradual pressure brought towards the centre of the superior strait, while at the same time the breech is assisted in going back to the fundus uteri.

1. The passage which follows is taken from the treatise on obstetrics by M. Hubert, Jr., who had the kindness to lend it to me, together with the works of his father, which I could not procure in France. For this I extend my sincerest thanks.

If a uterine contraction should come on, wait until it passes off, while the hands are merely held in place in order to preserve the effect obtained."

Certainly this teaching is not copied from Wigand, nor is it opposed to him as Hubert's son declares. Hubert, the elder, has published a certain number of observations, in which this method has been practically applied and followed by success.

"Whenever," says he, "version is performed before labor or at its commencement, in order to prevent the reproduction of the evil, we must have recourse to other means:

"1°.—The accoucheur, or an assistant should hold his hands in place during several pains.

"2°.—He should recommend the woman to lie upon her left side, if the extremity of the fœtal ovoid which he has turned towards the epigastrium, was at first inclined to the right side, and *vice versâ*.

"3°.—Before the operation is performed, a suitable binder should be arranged to pass around the flanks of the woman in order to follow up the action of the hands.

"A cushion about the size of the fist should be applied over the iliac region, a little to the outside of the point where the head or the breech was first found, and a large compress thicker above, should be placed on the other side lengthwise with the uterus; then the ends of the binder passing around the body under the flanks should be brought together and strongly tied, and if so desired the knot may be placed just over the cushion.

"4°.—The progress of the labor should be attentively watched, and the accoucheur should frequently assure himself that the mal-presentation does not return; if a tendency to such recurrence should be observed, it should be prevented by the assistance of the hands, by the rupture of the membranes, or by the use of ergot."

In England, even if version by external manœuvres has been so completely abandoned by obstetricians of the first half of this century, it is to-day looked upon as having become classic.

As proof of this I need only give what Barnes has said in

his excellent work on *Obstetrical Operations* (1), where, after having very judiciously shown the connection of external version, after Wigand, with the bi-polar or bi-manual method of Braxton Hicks, he gives the indications for cephalic version both *before and during labor.*

He, like Œsterle, (2) describes the operation during gestation, and adds: "When one has produced the desired position, it is then necessary to maintain it; a binder properly applied will serve that purpose very well. Lazzati operates after this method; he maintains the position by cushions or pads, which he fixes over the two extremities of the fœtal ovoid.

In America, the observations of Barker (3), and Taylor (4), show that the operation is common and is employed with equal success by American obstetricians.

In France, it is not until 1829 that we find in the first edition of the "Traité élémentaire de l'art des accouchements" by Velpeau, the method of Wigand described in the following manner: In speaking of cephalic version, Wigand says it may be often performed without carrying the hand into the genital organs, also that in pressing over the uterus through the abdominal wall, and aiding this still farther by position of the woman, we can very often turn the head to the centre of the superior strait.

"Before knowing the doctrine of the German professor I had already followed this precept, and I have recognized that in complying with it we are sometimes enabled to restore a vertex presentation to its natural position; I have employed it on two occasions since with success, before the rupture of the membranes, but I do not think that this manœuvre can ever be of much avail when the waters have been evacuated for a long time and the uterus strongly contracted.''

P. Dubois (5) devotes to the operation an important passage

1. Robert Barnes. *Lessons on Obstetrical Operations and the Treatment of Hemorrhage.*
2. *Sul rivolgimento esterno.* In Annali universali di med., 1859.
3. Barker. Amer. Med. Times, July, 1860.
4. Taylor. Amer. Med. Times, Dec. 1861.
5. Dubois, *Version Céphalique (in Dictionnaire 30).*

in his article on *version*, but these lines are far from carrying conviction. Dubois, with his great practical sense, was well aware of the advantages that might be derived from the operation, but having been but little acquainted with palpation, he appreciated only the very rare indications.

In October, 1836, M. Lecorche Colombe, says Belin (1), chief of the faculty clinic of Paris, performed in the presence of M. Ménière, then serving under Prof. Dubois, a version by external manœuvres for a presentation of the breech. The operation having been entirely successful, M. Colombe had occasion to repeat it several times, and he presented a memoir upon the subject before the Academy of Medicine in 1841, and afterwards at the Institute in 1855, which accorded him a recompense. (2).

In 1837, Vulfranc Gerdy (3) in his inaugural thesis, makes the following proposition:

"The external manipulations which are less painful and less harmful than the internal, are too little employed to modify the fœtal-presentations. Prior to the evacuation of the waters they can, aided by suitable position of the woman, promote the natural tendency of redressing the fœtus, and even after the escape of the waters, they may still, at times, suffice when the fœtus retains sufficient mobility."

Chailly-Honoré, having on one occasion, with M. Devillers, performed version by external manœuvres, devoted to it a paragraph in his treatise. (4).

M. Jacquemier (5), recognizing thoroughly that pressure over the abdominal wall could favorably change the situation of the fœtus, thought that although it should not be entirely neglected, it would generally result fruitlessly. In 1855 first appeared in the *Gazette Medicale*, (July No.) some fragments of M. Matteï's book, and a few months later the entire work. (6)

1. Belin, *loco citato.*
2. I have not been able to procure this work.
3. *Recherches et propositions d'anatomie, de pathologie, de toxicologie. Thesis No. 128, 1837.*
4. Chailly-Honoré. *Traité des accouchements. 1842.*
5. *Manuel d'accouchements.*
6. Matteï, *loco citato.*

In this book, of which I have already spoken in connection with palpation, M. Matteï not only shows himself to be an advocate of version by external manipulation, but also, departing from the usual custom, he affirms a new indication for the operation, by demonstrating that it can be used with the object of transforming presentations of the breech into presentations of the vertex. It is, indeed, only in this case, that he cal s the operation cephalic version; in shoulder presentations, which he calls indirect presentations, he does not admit the operation, and he gives the name of *reduction* to the operation which has for its object the turning of the head into the superior strait.

The importance of the chapter devoted to the operation by M. Matteï, obliges me to quote the principal passages.

" *Cephalic Version.*—

" We consider cephalic version to be the changing of a presentation of the breech into a presentation of the vertex.

" We have observed it to occur spontaneously, but this is rare, especially at the end of gestation, at least when it does not coincide with a combination of circumstances altogether peculiar, of which we shall have occasion to speak hereafter. What nature herself did, accoucheurs tried to repeat, and the idea of cephalic version in presentations of the breech suggested itself to some of them but found many opponents: The difficulty of an exact diagnosis, the difficulty of the operation, the few advantages that it offered, merely in removing a presentation of the b eech, which is already a natural presentation, and even the dangers that were attributed to it in preference to pelvic version, in cases of contracted pelvis; all these reasons and others similar, so lessened its value, that it was scarcely at all advised by accoucheurs in breech presentations. It is, indeed, not yet proven to us that it was practiced before the rupture of the membranes, especially on account of the difficulty that was experienced in diagnosis.

" It was most employed in trunk and face presentations, where, as we have seen, it does not deserve the name of version, and it was performed especially after the rupture of the membranes.

" We were not as yet acquainted with the history of cephalic version, when a favorable case of breech presentation which was recognized before the rupture of the membranes, per-

mitted us to practice it with the greatest success; and as this operation accorded fully with our ideas, we have since adopted it as a general method.

"To-day we can connect these facts with principles, and we do not hesitate to say that cephalic version will not be slow in largely asserting its claims over pelvic version.

"There is one condition that we have regarded as necessary both for palpation and version: That is the suppleness and slight sensibility of the utero-abdominal walls. This has already forced us to appreciate that version is but rarely possible during the contractions of labor, or in cases of abnormal tension of the utero-abdominal walls, and proves the necessity of examining the woman during gestation.

"Another condition is, that the fœtus in the amniotic sac preserves a sufficient mobility to permit version without inflicting violence on the child or mother, and this condition indicates *a priori* the time when version should be practiced: It is the period intervening between the sixth month and the middle of the ninth. During the last month especially, the fœtus acquires adipose tissue, and the liquor amnii, if it does not then diminish in volume, does not increase in the same proportion as it did during the other periods of pregnancy.

"Another condition which is the consequence of the preceding, is, that the breech of the child be not already engaged in the excavation. When the presentation of the breech is indirect and no matter to what part of the large pelvis the feet correspond, version is possible, even at the time of labor, but it is no longer so when the presentation is direct and the breech engages in the expanded segment of the uterus. The last fifteen days of gestation is precisely the most favorable time for this expansion, when the breech, being aptly situated, becomes difficult to dislodge.

"Thus, it has occurred to us on one occasion to try to perform version eight days after painful contractions had commenced to appear, and that even when the membranes were intact. On another occasion, it was also impossible to perform it a few days before labor. It is therefore evident why we should examine the woman and perform version, whenever indicated, during the seventh and eighth month, or at the beginning of the ninth.

The earlier we perform the version the easier it is; the more beneficial is it to the woman by relieving her of the ordinary troubles of pregnancy, when a presentation of the breech exists, and the more useful to the fœtus by averting a premature delivery, which is sometimes a consequence of these presentations. There is only one case which allows of delay, and that is where a dropsy of the amnion permits of great mobility of the fœtus in all directions, and gives the hope of a spontaneous version or a dislodgement from the superior strait of the part that was engaged. A last condition necessary for version, is that there be no obstacles, such as tumors, shortness of the cord, &c., which might oppose the manœuvres, or the movements which the fœtus has to execute. The recurrence of indirect presentations of the vertex after reduction, is as frequent as the recurrence of breech presentation after cephalic version is rare; and these recurrences of indirect vertex presentations must be again reduced just as they were when they originally existed. These recurrences, however, may happen at times and the causes are various; the principal are, an excessive mobility of the fœtus, too little expansion of the inferior uterine segment, a marked inclination of the uterus, and especially a considerable contraction at the superior strait. When the fœtus is movable, and a recurrence after the first version takes place, it should be turned again or several times if necessary. In such a case, it was only after three operations, that the fœtus could be finally maintained in a direct vertex presentation. Here the version was very easy on account of the abundance of liquor amnii.

"In the case of newly repeated recurrences, the fœtus should be held in position by means of a bandage applied for that purpose, of which I shall speak farther on. If, in spite of these means, the presentation of the breech returns, which is, however, rare, we should avail ourselves of the mobility of the fœtus, by performing version at the commencement of labor, and maintaining it until the head becomes engaged in the superior strait.

"If the dilatation of the os is complete, or nearly so, the membranes may be ruptured in order to fix the head.

"If the recurrence of the mal-presentation be due to a strong inclination of the uterus, it is evident that it will continue to

recur, unless this inclination be corrected, which may still be effected by the hypogastric bandage.

In the widening out of the inferior uterine segment, in its entirety instead of in part, by the weight which the fœtus exerts upon it, we can readily understand, that if the head does not rest upon the plane of the superior strait, its weight can no longer aid this distension.

What should then be done to favor this distension, is to maintain the head over the superior strait by the hypogastric bandage. There is only one case that can offer an obstacle, and that is the insertion of the placenta near the os. The placental mass which will then often become the cause of the mal-presentation, will oppose this widening out of the inferior uterine segment, although the internal os remain uncovered.

These are the cases which frequently present hemorrhages during labor; but where the pregnancy none the less often advances to full-term.

Finally, the recurrences of mal-presentations which are due to a contraction of the superior strait, do not permit of a physiological labor and consequently cannot be included in our subject."

In the chapter entitled, *Attentions to the Mother*, M. Matteï gives the following indications for the application of the bandage. "This bandage, which has been for a long time casually advised, without insisting upon it sufficiently, will render immense service when it is intelligently applied. For instance, its application should not be delayed until an excessive degree of anteversion or prolapse of the uterus has occurred, or until the last month of pregnancy, for then the evil is done; it may also be harmful in such a case by suddenly changing the visceral pressure. The bandage should be applied to all women of a slightly lymphatic temperament, or where there is reason to believe that the state of pregnancy will not be physiological, and it should here be used from the seventh month.

"In order that it should be useful, it is not necessary that it be painful, it should support and not compress the abdomen When pregnancy is well advanced if a faulty inclination of the uterus be observed, the bandage should be assisted by small pads, to augment the pressure wherever necessary; but

these pads become especially useful in aiding the maintenance of a reduction, or cephalic version, which has a tendency to recur.

"In these latter cases a binder around the body may be substituted for the bandage; but the binder with the pads soon becomes uncomfortable, and should not be used except during the last days of gestation." (1).

In 1857, Prof. Herrgott, in translating a part of the memoirs of Wigand (2), that had been already translated by Dr. Belin (3), renders a true service to obstetric science, for since that time we find a chapter devoted to this operation in all our classic works.

In 1858, Dr. Ducellier, of Geneva, wrote a very good thesis on version by external manœuvres.

In 1862, Dr. Nivert, in his inaugural thesis, after tracing out the history of this question, declared himself to be an advocate for version by external manœuvres, and at the end of his monograph gave thirteen cases in his personal experience, all successful for mother and child.

In 1866, Dr. Belin published a notable memoir upon version by external manœuvres, followed by three personal observations. This memoir was crowned by the society of Medicine of the department of the North.

Thanks to all these works, as also to the lessons of Prof. Stoltz, the method of Wigand is to-day thoroughly known.

Is it also popular? Is it often employed?

To these questions I must answer in the negative. And the reason that this appears paradoxical is, as well shown in the chapter which Cazeaux (4) devotes to version by external manœuvres, as in the one by Farnier upon the same operation, in his "*Atlas complémentaire de tous les traités d'accouchements*," from which I have already given an extract above, viz: the inefficiency of the operation during gestation, its difficulty during labor, and, I may add, the insufficient knowledge of palpation.

1. Matteï, p. 207-208.

2. This memoir which had been sent to the Academy by Wigand himself, received no praise and remained completely ignored.

3. Belin. Thesis in Strasburg, 1856.

4. Cazeau, revised by Tarnier, p. 952, 8th Edn.

## METHOD OF OPERATING.

Before performing the operation, it is necessary that the woman be placed in the correct position, *i. e.*, in the horizontal dorsal decubitus, with the lower extremities extended and slightly separated, the arms lying alongside the body, &c., just as when we intend to palpate.

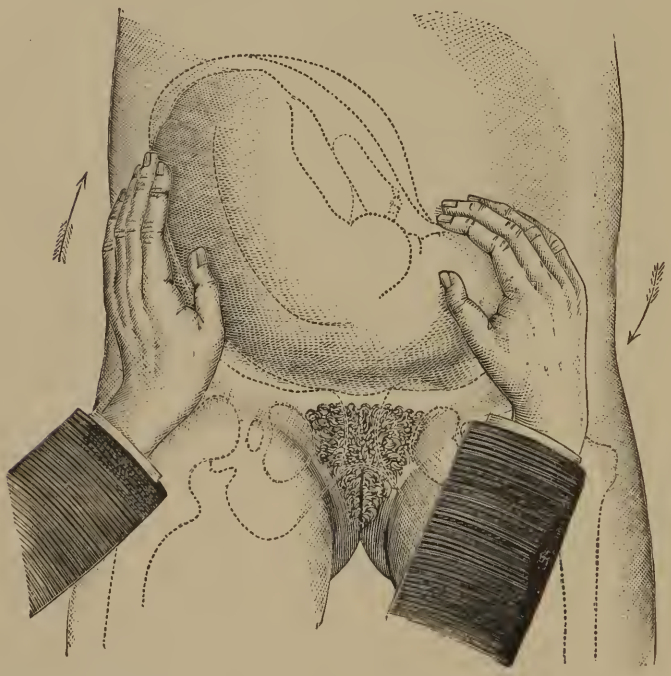


Fig. 26.—Position of the hands, and direction of the pressure to conduct the head by external manœuvres above the plane of the superior strait, in presentation of the shoulder.

Should uterine contraction occur during the operation, we must cease all pressure and wait for complete relaxation.

Only two conditions may offer:

1°.—The head may rest in one of the iliac fossæ, and the breech be in the opposite flank.

2°.—The head may be in relation with the superior uterine segment, while the breech remains below.

When the presentation is really transverse, as is shown in *figs.* 24 and 25, the operative procedure is essentially the same as that employed in presentation of the breech.

*The head in one of the iliac fossæ, and the breech in the opposite flank.*

In this case apply one hand over the fœtal head, the other over the breech, and by gentle and *sustained* pressure exerted inversely over one and the other extremity, turn the two poles of the fœtus under the median line. (*See fig. 26.*)

This manœuvre is the simplest, and I have never seen it fail during gestation. M. Nivert advises that only the cephalic extremity be pressed upon, thinking that if the pressure be directed inversely, it hinders rather than aids the operation. I am not of this opinion, however; on the contrary, I am convinced: 1°. That the pressures exerted inversely do not at all oppose one another. 2°. That the pressure made over the breech is more efficient than that made over the head, in as much as it is more directly transmitted to the trunk. 3°. That in certain cases where the child is large, or the uterus is malformed and has its long axis transverse or oblique, simple cephalic pressure may be insufficient, as I have several times observed with M. Tarnier.

*Head in relation with the superior uterine segment, breech below.*

Here, the first stage of the operation consists in rendering the fœtus movable. In multiparous women, this is generally easy, the two extremities of the child being as a rule accessible, and the laxity of the anterior abdominal wall permitting the fœtus to move in its entirety.

In primiparæ, especially those approaching full-term, when the presentation is the result of a true accommodation, the two extremities of the child being hidden away, can only be very imperfectly grasped by the hands of the operator.

Sometimes the head is more or less deeply situated under the false ribs, in which case a mass of intestines may be interposed between the abdominal wall and the uterus. We should then try to displace the head, either by pressing it down upon one

side, or by displacing the breech, and the movements imparted to the child have nearly always resulted in rendering the head more superficial, and at the same time more accessible. At times the head is prehensible, but the pelvic extremity, although not engaged, presenting itself perpendicularly to the superior strait, slightly presses into the excavation.

This is especially observed in the incomplete variety of breech presentations.

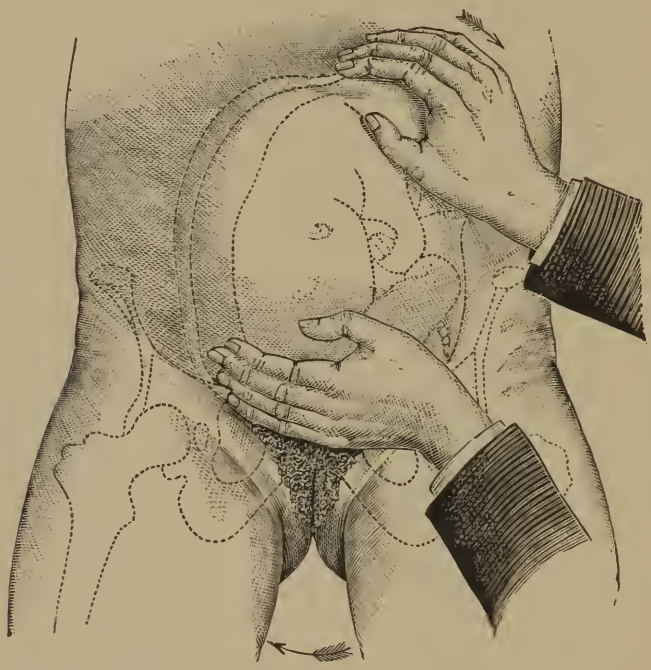


FIG. 27—Position of the hands and direction of the pressure, in cephalic version by external manœuvres, the breech being below.

In order to render the pelvic extremity accessible, and at the same time the fœtal evolution possible, we should then gradually elevate this extremity by introducing the finger into the vagina and pushing up the inferior uterine segment above the

brim, when we direct the breech towards one of the sides of the large pelvis. This stage of the operation is neither difficult for the operator, painful for the woman, nor dangerous for the child.

To facilitate this displacement of the breech, we may at the same time exert slight pressure in an opposite direction over the cephalic extremity, thereby imitating the operative procedure of bi-polar version. The two fœtal extremities being movable and accessible, and the hands being applied over them, we should make slow and continued pressure in such a manner as to cause the breech to ascend and the head to descend by the shortest route, (see Fig. 27.)

Some authors have advised that the pressure should always be made in the direction of flexion; although we may succeed with this method in the majority of cases, it is none the less true that in some others we must act otherwise.

I may state that I have never seen extension of the cephalic extremity produced. It would perhaps not be so, if we pressed upon the cephalic extremity only.

I repeat that the pressure made over the pelvic extremity, has, in every case seemed to me to be more efficient than that made over the cephalic extremity.

Let it be well understood, that if, after several endeavors, the evolution of the fœtus shows no tendency to be produced, we should desist, as I have already shown in the chapter on contra-indications.

It should also be remembered that, although the operation is easy and rapid in multiparæ, we may find it more difficult in primiparæ. With them the pressure should be more sustained, more prolonged, and even then we may not succeed in all cases, although we may have taken every precaution to avoid interference from the involuntary contractions of the abdominal muscles.

During the past year, at the Maternity, M. Tarnier, having diagnosed a presentation of the breech upon a woman about 8½ months pregnant, lying in St. Adelaide's ward, tried in vain to perform version by external manœuvres. Having myself attempted the same, I was no more fortunate. The abdominal wall of this woman was very thick and constantly tense.

In order to relax the muscles M. Tarnier finally gave chloroform until they were entirely flaccid, and even in that condition neither one of us could turn the child. Certainly, in this case, everything was normal, as was determined at the time of labor; it was the tonicity of the abdominal muscles, and perhaps also of the uterine wall, which in opposing the increase of the transverse diameter of the uterine cavity prevented the evolution of the fœtus. Perhaps had we operated earlier the version would have been possible.

Thus, as you observe, I have not mentioned either the frictions recommended by Wigand, or the lateral decubitus of Hubert, for these different procedures are always painful to the woman, and it is only by chance that they succeed. Although by no means do I desire to discuss here, if in certain cases of contracted pelvis the presentation of the vertex is not more desirable than that of the breech, I should, however, say a few words concerning pelvic version by external manœuvres. I have performed this operation only once at the Maternity, upon a woman about 8 months pregnant, who had a contracted pelvis (sacro-pubic diameter at least 8 c. m).

In this case, of which I give the history below, the head was above the superior strait. I operated by placing my two hands over the two fœtal extremities respectively, as in cephalic version, and the breech rapidly descended. I believe that there are no other rules to follow.

*Contracted Pelvis.—No Presentation.—Cephalic Version by External Manœuvres.—Bandage.—Pelvic Version by External Manœuvres.—Bandage. Induced Premature Labor. —Child living.*

(Reported by Dr. Ribemont.)

B..... aet. 35 years.

First Confinement, July 31, 1875.

Vertex presentation. Application of the forceps by M. Polaillon. Mechanical traction by the aid of the machine of Pros. Child dead. Boy, weighing 3,800 grms. The tractions were of more than 40 kilog. power.

The second pregnancy began in April, 1877. Last menstruation from April 22d to April 27th. The woman was small and

had been affected with rachitis about the age of one and a half years. At that age she sustained a fracture of the left thigh. The leg was shortened eight centimetres. First menstruated at the age of 11 years, and has been regular ever since, each period lasting 5 days. Entered the Maternity Oct. 24.

Abdomen large, liquor amnii abundant. Above the plane of the superior strait we felt a large mass, continuous in the right flank with the surface of a resisting plane. Above the umbilicus the fœtal part appeared more regular than that which lay nearer the superior strait, it was difficult to map out, and moved readily under the hands. The heart-sounds were heard on a level with and to the right of the umbilicus, the cervix was large and firm, the os externum patulous and very much torn. The examining finger easily reached the sacro-vertebral angle and also readily touched the anterior face of the sacrum. The conjugata interna measured 9 centimetres.

The patient remained under observation during the month of November without the fœtus leaving its situation.

Dec. 8th M. Pinard, by invitation of M. Tarnier, performed version by external manœuvres and readily turned the cephalic extremity into the superior strait. Bandage applied. On the subsequent days we found that the head still remained below.

Dec. 23d the patient loosened her bandage after having removed the thigh straps. On the following day the head was in the right hypochondriac region, breech in the left iliac fossa, and the back directed anteriorly and below. Pelvic version by external manœuvres was performed, the breech being turned directly over the superior strait and the bandage re-applied.

Dec. 29th, A. M., the breech not changed. M. Tarnier determined to induce labor and kept one of his dilators for ten hours in the uterus. The first pains appeared at 11 A. M., and continued feeble until 9 P. M. when they became more powerful. The woman was removed to the lying-in chamber. Cervix effaced. Os dilated 1½ c.m. in diameter.

Presentation of the breech, S. I. R. A.

Dilatation complete, December 30th, 6:45 A. M. Spontaneous delivery at 7 A. M. Child living. Girl, weighing 2,950 grms.

## INDICATIONS AND TIME OF ELECTION FOR THE OPERATION.

*During gestation:* In all cases, where, after eight months of gestation the head occupies either the iliac fossa or the superior uterine segment, we should perform cephalic version by external manœuvres. It is indispensable to well define and give reasons for these several indications, if we can.

Knowing the history of the fœtus during its intra-uterine life, it results, that if at the eighth month of pregnancy the head should not sink, either partly or entirely into the excavation, we can affirm that the accommodation is abnormal or incomplete, or altogether faulty. We should then correct this by external version.

But you will object, and not without an appearance of reason, as follows:

Do we not often observe evolution to occur spontaneously, and the head to present at the superior strait and engage either during the last weeks of pregnancy, or indeed at the commencement of labor?

That is perfectly true, but it is none the less true, that spontaneous evolution does not always occur, as is proved by the number of mal-presentations.

Therefore, if after having determined the faulty attitude of the fœtus at the period above indicated, we do not interfere, we leave both the mother and child to their fate. What would be said to-day of an accoucheur who, confiding in the resources of nature and relying upon the occurrence of spontaneous version, sits passively with folded arms before a woman in labor with transverse presentation? Nevertheless a certain number of spontaneous versions have been recorded. And should not the same opinion be held of him who relies upon the occurrence of spontaneous version during the last month of pregnancy?

I am well aware that M. Tarnier has written: "In a considerable number of cases the uterine contractions will suffice to rectify the presentation and will bring about a perfectly happy labor." But that was at a time when he, with reason, wrote after these lines the following: "useless during gestation, impossible when the shoulder is deeply engaged, external version, in our

opinion, is not applicable, save in certain exceptional cases, where it does offer incontestable advantages over internal version." But now the opinion of my esteemed teacher has changed completely. Knowing how easy it is to render the operation efficient during gestation, he no longer hesitates to advise it to be performed, even during that period. Moreover, he authorized me to publish the following case, in order to show how imprudent it is, always to rely upon the resources of nature.

*Presentation of the Left Lateral Plane.— Version by External Manœuvres.—Application of Dr. Pinard's Abdominal Bandage.—Premature Removal of the Bandage.—Reproduction of the Shoulder Presentation.—Podalic Version.*

(Case reported by Dr. Ribemont, interne at the Maternity.)

Mrs. D., aet. 31 years. VIII-para.

This woman, well formed, menstruated at the age of ten years, and since then has been regular every month for eight days at a time, profusely.

Five of her pregnancies were terminated at full-term by natural labors; vertex presenting. Two other pregnancies were terminated by abortions the cause of which is not known.

She entered the Maternity July 10th, St. Adelaide's ward, bed No. 2, believing herself to be near full term.

Her last menstruation was from the 18th to the 24th of September.

During the course of her pregnancy she suffered severe abdominal pains. She had syncopes and gastric disturbances.

Her abdomen was developed to the size of one at the ninth month of pregnancy, although the fundus uteri was uot much elevated above the umbilicus. Palpation revealed the pelvic excavation empty, but in the right iliac fossa the head was found, ballotting freely. In the left flank the other extremity of the fœtus was perceived. The inferior extremities were not distinct'y felt. Going from one pole to the other a large resisting plane was fonnd.

The diagnosis was presentation of the left shoulder in the right cephalo-iliac positi n.

*Auscultation.*—Heart sounds perceived under the median line at an equal distance between the umbilicus and the pubes.

*Touch.*—Pelvis normal, excavation empty, cervix soft and admits one finger, but still has considerable length.

July 15, M. Tarnier performed version by external manœuvres, the head being turned into the superior strait, and M. Pinard's bandage applied to hold the fœtus in its new presentation. During the subsequent days the head did not leave the superior pelvic strait, nor did it engage.

July 29th, M. Tarnier, desiring to see if the head retained its situation, removed the bandage, when it resumed its former attitude. On the two following days everything remained in statu quo.

July 23, in order to clear out St. Adelaïde's ward, the patient went up into the dormitory and from that time forth she escaped our close observation.

July 30th, 7 P. M., she entered into labor and was removed to the lying-in chamber. The neck was effaced and the os dilated to about the size of a five franc piece. The transverse presentation had been reproduced. The left shoulder in the right cephalo-iliac position presented. The bag of waters was so large we could not touch the fœtus.

At 10 A. M., the dilation being complete, podalic version was performed, and quite a large, living, female child delivered.

Weight.....3280 grms.
Length.....48 cent.
Diameters of head, O. M.....13 "
Bi. P..... 9 "

The woman left the hospital Aug. 11th.

Thus, in this case, can one see that not only were the uterine contractions unable to correct the mal-presentations, but even external version was completely useless, as soon as the bandage was removed. As regards the result of the case, of course we have nothing to regret, as the child was born alive, and the mother made a very good recovery, but should we have the presumption to say that neither one nor the other was exposed to danger?

For four years, excepting the instance which I shall cite be-

low, I did not observe but one single case of shoulder presentation which was left entirely to nature; in all the other cases the intervention of art was followed by success.

In brief, this is the instance to which I allude: Feb. 2 th, 1876, a II-para, about eight months pregnant, was placed in No. 28 of the Clinical hospital. At the examination, palpation revealed a shoulder presentation, but by vaginal touch no part of the fœtus could be felt. External version was performed, the bandage applied and maintained. March 2d, another woman beginning to suffer a little, was received into the lying-in ward. Being immediately examined, it was found that the child offered a breech presentation. I then performed, before Prof. Depaul and the students, version by external manœuvres and applied the bandage; but as at that time the hospital only afforded one bandage, I was obliged to take the one applied to the woman in bed No. 28, thinking that as she was advanced but eight months and a half in her pregnancy, I would have time to procure another for her.

The moment I removed it, the head commenced to rise up out of the excavation. That same evening both women were in labor in the lying-in chamber, but while the one who had the binder, *i. e.*, the one upon whom I had performed cephalic version for breech presentation was in the second stage of normal labor, vertex presenting, the other had her thighs separated and a hand appeared at the vulva, *i. e.*, the original transverse presentation had returned. I shall never forget that day, marked by two such demonstrative examples, that occurred before a considerable number of students!

Thus we see that we should not rely too much upon nature. It may still be objected that we should watch the woman attentively during the last months of pregnancy, but interfere only during the last days, or indeed not until the very commencement of labor, if the presentation remains faulty. In fact that can be done, but may not the membranes rupture prematurely? Will one always be on hand at the commencement of labor? And finally, who shall declare within a few days the exact age of the pregnancy? How many women are confined fifteen days, three weeks, or indeed even a month before the appointed

time? All accoucheurs are aware of this, and I by no means allude solely to premature labors, but also to labors at full-term. The last reason which has made me assign the eighth month as the *time of election* is because at that time the fœtus being incompletely developed, it enjoys in most cases a sufficient mobility to permit of turning in all directions.

At a more advanced period of the pregnancy, the evolution of the fœtus upon its long axis becomes difficult, and sometimes, indeed, impossible. If shoulder presentations do constitute a distinct and accepted indication for every one, it is by no means the same with the presentations of the breech.

According to some authors, Prof. Hubert de Louvain among others, breech presentations should be considered as normal, and consequently we should not attempt to substitute for them presentations of the vertex. I am surprised that a man as bold as Hubert, and of such large experience, should maintain such an opinion! Especially, when the statistics of Madame Lachapelle show that one child dies out of every ten; and from the statistics taken from the Upper Rhine district, Hegar (1) cites the following:

*Mortality for children in breech presentations.*

35 out of 100, still-born.
5 " " 100, die on the first day.

*Mortality for children in vertex presentations.*

2.4 " " 100, stiil-born.
1. " " 100, die on the first day.

*Mortality for mothers.* *Vertex*, 0.57 out of 100, die.
" " " *Breech*, 1 " " 100, "

When Hecker in his book (2) estimates the mortality for children in breech presentations as 22 out of 100, how is it possible to admit that labor in cases of breech presentation can be normal? Is it natural in mechanism? yes; in its results? no!

I can far better understand Velpeau (3) and Maygrier (4)

1. Hegar, in *Deutsche Klinik*, No. 33, 1866.
2. *Klinik der Geburtsh.*, t. 2.
3. Velpeau, *loco citato*. T. 1°. article 2, p. 531.
4. Maygrier. *Nouvelles démonstrations d'accouchement*. Paris, 1840, p. 301.

who describe this presentation in the part of their trestises entitled: Unnatural Eutocia.

Therefore in view of the prognosis being such, that we find nothing similar to it except in the most terrible diseases, I think that all efforts to substitute a vertex presentation for a breech are legitimate, and will farther say, should be tried in all cases. Other authorities have considered cephalic version in cases of breech presentations dangerous both for the mother and child, or, indeed, even impossible. Thus Scanzoni says (1), "even in those very cases where the body of the child possesses sufficient mobility, it will still be quite difficult to turn the head toward the superior strait when it is far removed from it. Thus, one of the indispensable conditions for the success of the operation, is that the head of the fœtus should be near the superior strait." And so, the indication distinctly announced for the first time by Matteï in 1866, was actively opposed both at home and abroad. "Never," exclaimed Martin in the obstetrical society of Berlin (2), "should any German physician dare to perform cephalic version in cases of breech presentations!"

Notwithstanding this anathema uttered by the Berlin professor, the idea of cephalic version in breech presentations has progressed. Notice how Hegar (3) expresses himself in an excellent article upon version by external manœuvres. "If we consider breech presentations to be more unfavorable both for the child and the mother, I cannot understand why we should not permit such an operation to become an established procedure, if it prove to be of no inconvenience to the mother. Cephalic version by external manœuvres in presentations of the breech, is perfectly justifiable when no contra-indication exists, such as contracted pelvis or death of the child.

"But we cannot definitely judge this operation until a large number of observations have been made. Far from recommending this operation in all cases, *a priori*, I do not think that we should object to its performance, and I believe that the results I shall give will elicit new trials."

1. Scanzoni, translated by Picard p. 301.
3. *Monatsschrift für Geburtsk.* T. xvi. p. 1. 1860.
3. Hegar in *Deutsche Klinik*, n°. 33, 1866.

1°. *Case.* II-para, at term. Breech presentation. Commencement of labor. Neck effaced. One finger introduced in the vagina, pushed up the breech, while the other hand forced down the head; the version was easily effected. The woman was placed on her back and a cushion applied over the fœtal head. Version was performed at 1 P. M.; pains were frequent at 3 P. M.; delivery at 9 P. M. Presentation of the vertex, O. I. L A.

2° *Case.* Woman 28 years old III-para, former labors normal; examined June 5th. Breech presentation. Version was performed by gradual inverse pressure over the head and breech, and vaginal touch soon revealed the head below. June 8th, head in the left flank breech in the right; transverse presentation. The head was again turned below. June 9th, pains regular, head to the left above the umbilicus. The assistant tried to perform external version but did not succeed at first, but sometime after the pains had subsided, version was performed. Delivered June 10th. Vertex presentation, O. I. L. A.

3° *Case.* E. æt. 37 years. III-para. First examined May 29th; abdomen pendulous; no part of the fœtus engaged; head above, breech below. Version easy after two attempts. May 30th, head reascended above and to the right; breech just over the pubes. A student readily performed external version. Repeated examinations on subsequent days, invariably showed the head to be at the superior strait. Labor during the night of June 26th and 27th, vertex presenting. Child alive. Mother did well, as in the other two cases.

I have thought it best to give these observations because they are instructive in every respect. They show.

1°.—That in breech presentations cephalic version is possible.

2°.—That it is not dangerous either for the mother or the child.

3°.—That the original presentation may recur, even after several versions.

In reading the observations appended to the end of the chapter, one will observe that in all the cases where cephalic

version was performed for breech presentations there was never any trouble either to the mother or the child. All the authors consider an abnormal placental insertion to be a contra-indication. Far from being of their opinion I consider this accident of pregnancy to be a fixed indication (1).

To-day, when "accouchement forcé" is justly proscribed, one should not think of extracting the fœtus until the os is dilated or dilatable. Yet, is podalic version or extraction by the feet preferable to the application of the forceps in such a case? I think not. (2)

I do not know that I may be permitted to record here, certain facts relative to this question, but in a case of marginal placental insertion that had already caused three severe hemorrhages, I performed cephalic version by external manœuvres, and having forced the fœtus to engage, the hemorrhages did not recur either during gestation or labor.

Here is the entire observation as I reported it to the chirurgical society.

*11-Para.—Abnormal Placental Insertion.—Presentation of the Left Shoulder.—A. I. R.—Version.—Bandage.—Delivery by Vertex. O. I. L. A.*

G. æt 21 years, florist; entered the hospital Aug. 17th, 1876, service of Professor Depaul, substituted by M. Guéniot. This woman, occupying bed No. 8 furnished the following history.

Dec., '74. First labor; natural delivery; child at term; vertex presentation, Puerperium normal, menstruation returning six weeks after labor (she nursed for nine days only). Catamenia regular until Nov. 25, 1885, then suppressed. This last

*1. In cases of placenta prœviæ the translator would decidedly prefer to deal with breech presentations. See Article by R. Lomer in Amer. Jour of Obstetrics, Dec., '84, and nearly all the standard authors.*

*2. With all due respect to the authority, the translator still considers internal podalic version, when possible, to be preferable to the high forceps operation. See article by Kingman in Amer. Jour. of Obstetrics, July, '84, page 723. Also Simpson and other standard authors.*

menstrual period was of the same duration as the others, although the amount of blood lost seemed to have been less. The first six months of this pregnancy progressed favorably. Towards the seventh month, July 30th, 1876, at 6 A. M., whilst still in bed, she felt wet. She lit a candle and saw that it was blood. She thought that she must have lost about half a tumbler-full. A midwife was then consulted, who advised quiet and cold drinks. She, however, continued to bleed until the evening, when it ceased completely. For fifteen days subsequently, she suffered pains in the flanks and hypogastrium. A few days afterward, July 24th, a fresh hemorrhage occurred again while she was asleep. She said she then lost more than half a litre of blood. At midnight she was brought into the clinic. As soon as she was placed in bed, the hemorrhage ceased. On the 6th or 7th of August, during her stay in the hospital a small, insignificant hemorrhage occurred. She left the hospital Aug. 14th, '76. Three days afterward, Aug. 17th, the patient, while lying down, began to feel uncomfortable; she got up and flooded the floor with blood. A half hour afterwards she arrived at the clinic, where once in bed the hemorrhage again ceased.

Sept. 9th. Since her entrance she had no more hemorrhages, but suffered constantly in the flanks and hypogastrium. She gained a little color. The abdomen was well developed and presented a cordiform appearance, especially during contractions, which were frequent. The uterus stood six finger breadths above the umbilicus. Palpation showed the excavation and inferior uterine segment empty. The fœtal head was situated in the right flank, in relation with the false ribs; the breech was in the left flank nearly upon the same level as the head; the back was in front. It was a transverse presentation in the true acceptation of the word. The maximum intensity of fœtal heart sounds was found about the level of the umbilicus. Uterine souffle, synchronous with the maternal pulse was perceptible, especially to the left of the linea alba; this souffle could be made to disappear by pressing between the stethoscope and the anterior iliac spine.

Touch revealed throughout the entire extent of the vagina

arterial pulsations. The very large neck, having its entire length, was directed to the left and decidedly posteriorly. No fœtal parts were accessible ; no difference was perceived between the two culs-de-sac; the inferior uterine segment was quite regular.

Sept. 11th. The breech descended and rested in the left iliac fossa. We had a breech presentation : S. I. L. A. The woman suffered a great deal.

Sept. 12th, P. M. M. Pinard, chief of the clinic, performed cephalic version by external manœuvres the operation being very easy. Upon examining the woman, we found a vertex presentation : O. I. R. P.

Sept. 14th. The position of the fœtus had not changed. The patient suffered much ; she could sleep but little.

Sept. 15th. Presentation the same, the position changed into O. I. L. A. The head movable over the brim, not engaged. M. Pinard applied the bandage. Touch confirmed the signs furnished by palpation. In carrying the finger high up behind the symphysis pubis the head was felt to be very movable, and readily permitting of its being pushed away.

Sept. 16. Since yesterday, frequent urinations, but no pains.

Sept. 20. The head sunk in the excavation was still, however, not immovable. We could readily push it up a little with the fingers. The neck was directed posteriorly and to the left. We could easily recognize that the anterior half of the inferior uterine segment was decidedly thicker than the posterior.

Sept. 25th. Since last night she suffered pains about every quarter of an hour. Touch showed the vertex deeply engaged. Neck effaced ; os dilated to about the size of a 20 sous piece. The head could be distinctly felt through the membranes. Delivered at at 5:10 P. M., of a boy weighing 3.610 grms. Vertex presentation. O. I. L. A.

During the stages of dilatation and expulsion she did not lose one single drop of blood ; but the expulsion of the placenta was accompanied by a hemorrhage of about 500 grms.

*Examination of the Placenta.*

The membranes ruptured near the border of the placenta. At this place the placenta showed lesions which attested the preceding hemorrhages. There was an atrophy and an almost complete disappearance of the cotyledons; in their place was quite a thick layer of stratified fibrin of a greyish hue. This portion of the placenta which measured 3 centimetres in breadth and 11 in length contrasted with the rest of the after-birth, by its appearance, its color and its thinness.

Oct. 5th. At her own request she left the hospital. The puerperium had been normal. She still presented a decided anæmia on account of her abundant hemorrhages."

In this case did the head by strongly pressing upon the inferior uterine segment, and at the same time upon the placenta, prevent the recurrence of the hemorrhages? Only having this one instance, I cannot affirm this, but in view of such evils as frequently do follow the known treatment, I think with Simpson (1), that every attempt to diminish the dreadful mortality in these cases is worthy of the attention of obstetricians, even if they should not be willing to concede their approbation and their conviction. Moreover, I believe that in no case where the fœtus presents by the breech or the shoulder, should the implantation of the plancenta over the inferior uterine segment constitute a contra-indication to version by external manœuvres. (2)

## CONTRA-INDICATIONS.

The contra indications for cephalic version by external manœuvres are very few, especially when the operation is performed during gestation.

There is indeed but one, the source of which is sometimes maternal, sometimes fœtal, but which generally proceeds from both organisms. I allude to the imperfect mobility of the fœtus hindering version. This condition may be found:

1°. *In cases of multiple pregnancy.*—

One can readily understand that it would be rash and dangerous to think of changing the presentation when the two fœtus

1. Simpson. *Obstetrical Clinic.*
2. See note on page 85.

present, the one by the shoulder, the other by the breech. The pressure would rupture the membranes if the sacs were distended, or alter the relation of the fœtal annexes, particularly of the umbilical cords. In such cases I do not think we should interfere before labor or before the rupture of the membranes, but always, be it remembered, during the interval between uterine contractions.

Immediately after the expulsion of the first child, the second fœtus, be it either in a sac to itself or in one common to both, possesses sufficient mobility to permit of its vertex being turned below by external manœuvres, no matter what may have been its original presentation.

The capital point is, to make the diagnosis of the multiple pregnancy, so that, should we find, let us suppose, one head above, we would not think of pushing it down by repeated endeavors, when at the same time we perceive that the second fœtus would prevent the version. Nevertheless such manœuvres may sometimes be performed without there resulting any harm either to the mother or the child. I know of one case of multiple pregnancy, where the accoucheur, thinking he had to do with a breech presentation in a simple pregnancy, after efforts that were fatiguing to himself, transformed the breech presentation into one of the vertex. A few days later labor began, and he assisted at the birth of two fine children, both of whom presented by the vertex.

2°. *In cases of breech presentation in primiparæ.*

When the presentation is the result of an accommodation and remains the same, *i. e.*, fixed, during the latter period of pregnancy, when, in a word, there exists the variety of presentation which I call *frank*, version may be impossible.

We should then cease the manœuvres after several fruitless endeavors, and repeat them after an interval of several hours or days, but they should always be practiced with the greatest gentleness and slowness.

I have already had occasion to relate three such cases, one of which was seen with M. Tarnier.

3°. *In cases of shoulder presentation where there is a malformation of the uterus.*

Here again the presentation is the result of an accommoda-

tion; the uterine cavity being mal-developed, is not very spacious, and, indeed, sometimes has a prominent projection along the median line of its internal surface, as in the cases published by M. Polaillon.

We can understand that in such cases, the mobility of the fœtus may be decidedly limited. Also in these cases must we be very careful in our manipulations.

In one of M. Polaillon's cases. version was impossible, but I may add that in a similar case I observed in the service of Prof. Broca, I was able, without employing any very great force to transform a presentation of the shoulder into a presentation of the vertex.

4°. *In cases where version is performed during labor.*

The mobility of the fœtus is lost when the membranes are ruptured, for the quantity of liquor amnii retained is insufficient to preserve a sufficient dilatation of the uterine cavity, to favor the movement, and also because of the subsequent frequency of uterine contractions. It is just at this time that, when operating we may perhaps produce a prolapse of the fœtal extremities, or of the cord, as also presentations of the face, or inclined varieties of the vertex.

Concerning the other conditions, generally considered by authors as contra-indications, I shall merely mention them, in order to show their little importance.

Thus, hydrocephalus, death, deformities, ascites of the fœtus on the one hand; hemorrhages, convulsions, syncopes, persistent vomitings, strangulated herniæ, aneurisms of the mother, on the other, have been considered as contra-indicating external version. I do not desire to discuss these facts.

## THE MEANS FOR DEFINITELY TRANSFORMING PRESENTATIONS OF THE SHOULDER AND OF THE BREECH INTO PRESENTATIONS OF THE VERTEX.

### *History.*

Among those accoucheurs who have given their attention to cephalic version by external manœuvres, and have advised that the operation should be performed during gestation, there are some, few in number it is true, who think that the newly pro-

duced presentation is and will remain fixed after the version, and consequently without condemning the precautions taken for this object, they reject them as being well nigh useless.

M. Nivert says: "We have performed external version fifteen times, both before and during labor. In only one case have we observed the mal-presentation recur, and that was in a woman threatened with premature confinement at the seventh month of her pregnancy.

The fœtus was small, movable, and maintained the situation we gave it only with difficulty. Hence, we believe, that when we have performed this operation during pregnancy and effected this alteration in the relation between the child and the uterine cavity, that the new presentation will be maintained in the great majority of cases; *if, perchance, it should not be maintained, we should desist from its farther performance, to repeat it when labor sets in.*" (1)

These lines would astonish those, who have so often observed the mal-presentation recur after the performance of version by external manœuvres, if, after a closer study of M. Nivert's work, they did not perceive:

1.—That in only six cases was the operation performed during pregnancy, and even then at a time but little removed from the period of labor.

Twice 2 days before labor.
Once 3 " " "
" 5 " " "
" 9 " " "
" 12 " " "

2°.—That in perhaps only one case, No. LX, was the operation performed for a breech presentation.

Although these remarks may detract from the importance of M. Nivert's assertions, and although I justly appreciate the value of his important work, I cannot agree with his conclusions, and am convinced that he must have had a particularly fortunate series of cases. In fact, the majority of the partisans of version by external manœuvres, have observed the frequency of the recurrence of the mal-presentation. The very discoverer

1. Nivert, *loco citato*, p. 75.

of the operation, Wigand himself, was convinced of this fact when he recommended that the operation should not be performed except at the time of labor, and still farther formulated the following precepts:

1°.—"As soon as vaginal touch shows that the external manœuvres have effected the descent of the head or breech over the os uteri, we should rupture the membranes, in order to fix the child by the compression which the uterine walls exert upon it.

2°.—At the moment the waters have escaped, not only should the woman remain perfectly quiet, but the abdomen should be compressed upon both sides quite forcibly and slowly, until the presenting part has penetrated so deep into the excavation that it will thenceforth be impossible for the fœtus to resume its primitive position." (1)

Hubert de Louvain also believed in the recurrence of the mal-presentation; he advised to resort to the following means:

1°.—"The accoucheur or an assistant should hold the hands in position during several pains.

2°.—He should advise the woman to lie upon the left side, if the extremity of the fœtal ovoid which was turned towards the epigastrium was originally on the right, and *vice versa*.

3°.—A binder passed under the woman's flanks before the operation will take the place of the hands." (2)

Matteï, being of the same opinion, says: "When the fœtus is movable and there is a recurrence of the mal-presentation after the first version, we should turn once more or several times. In such a case it was only after having operated three times, that the fœtus was finally maintained in a direct vertex presentation.

Should there be new recurrences, we should maintain the fœtus in position by a bandage applied for that purpose. "If *notwithstanding these means* the presentation of the breech should recur, which is rare, we should profit by the mobility of the fœtus, and perform version at the commencement of labor and maintain it until the head engages in the superior strait." (3)

It was after having observed the frequency of the recurrence

1. Wigand, *loco citato*.
2. Hubert, *loco citato*, on version by external manœuvres.
3. Matteï, *loco citato*, gives two very interesting cases.

of mal-presentation after version, that M. Tarnier wrote that the operation was both inefficient, and, indeed, *useless*, during gestation.

Schrœder says: "We should not expect to obtain any very great advantage from cephalic version when performed during gestation, for precisely in those cases where at the end of pregnancy the head does not present, the presentation usually offers a great variability, and consequently the cephalic presentation which we have produced has but little chance of being maintained." (1)

We have seen in Hegar's cases quoted above, that this author was obliged to perform cephalic version repeatedly in the same case in order to maintain the head below.

Ellinger (of Stuttgart) (2), in a memoir upon version by external manœuvres, gives two very interesting cases, which demonstrate that although the operation was performed towards the end of gestation, as well as at the commencement of labor, one operation was far from being sufficient. The following is the résumé of these two cases:

1° *Case.*—Madame B., æt. 33 years, enjoying good health, was confined three times under normal conditions.

During a new pregnancy, the midwife being called in, Jan. 11th, 1876, diagnosed a presentation of the shoulder, and I confirmed the diagnosis on the same day. The head was upon the left side and the back in front. I pushed the head towards the superior strait and held it there with my hand, but it resumed its former position as soon as I ceased the pressure.

The same manœuvre was repeated on the 17th with the same result. Labor commenced on the 19th, A. M. Having placed the woman in the left lateral decubitus, I again pushed the head into the superior strait, where the midwife held it, particularly at the commencement of each pain. At 11 P. M. the child was born spontaneously, vertex presenting; it was covered by the caul and the liquor amnii did not escape until the head was delivered.

2° *Case.*—Madame F., wife of a cigar maker, was naturally delivered of six children. During her seventh pregnancy, in

1. Schroeder, *loco citato.*
2. *Amer. Jour. of Obstetrics*, April, 1877.

February, 1876, the midwife diagnosed a transverse presentation. I easily performed version by external manœuvres, and conducted the head to the superior strait. For three weeks the operation was repeated once a week with the same result, viz., as soon as the woman would assume the upright position, the fœtus would resume the transverse.

After numerous examinations, I could precisely determine which extremity was the breech and which the head, and this had for some time been doubtful.

March 7th, 1876—6 A. M. The membranes ruptured. I was called at 1 P. M. and found the head a little more to the left; having pushed it toward the superior strait I had it held there by the midwife and husband alternately. The child was born alive without the intervention of art."

Finally, in order to omit nothing concerning the subject which now occupies our attention, I shall still give another example recorded in the thesis of Dr. Réal, which case by adding to the numerous means employed to correct mal-presentations, again testifies in favor of the efforts directed towards the attainment of the desired object.

### *A case of preventive treatment of trunk presentation followed by success.* (1)

Madame B., was delivered in January and December, each time of a boy. In both instances there was a presentation of the trunk. Version was difficult and prolonged and the children perished. The mother escaped all dangers in these laborious confinements. In 1847, Madame B. again became pregnant, and the fear of the terrible experiences which she had previously suffered, caused her husband, an intelligent and prudent man, to consult me immediately, with a view to know if it were possible to adopt any means to prevent the repetition of the same misfortune.

Although I did not find any preventive against trunk presentations in the authors, I was still convinced that the mal-presentation in this woman could not be attributed to chance, especially in view of the fact that there were many other cases

1. Louis Réal's Thesis, Paris, 1852.

in which it had been reproduced, even as often as five times, according to the report of M. Nægelé. Therefore, considering this result to be due to certain organic dispositions, which doubtless would not fail to cause the same effect again in Madame B., I sought what might be the presumable cause, in order to try to employ the proper remedy. This was my opinion, and in virtue of it I soon instituted a combination of prophylactic measures. I admit the most probable of all to be the opinion that the fœtus arranges itself in the uterine cavity in that position which is easiest for it to assume in its smooth sac, so that the largest diameters of the body contained are naturally found in relation with the largest diameters of the body containing. Under this general expression of "body containing," we should understand all those abdominal organs whose walls may have an influence upon the fœtus, and especially should we understand the uterus itself.

This being established, we can readily conceive how a trunk presentation may be caused by a relative diminution in the vertical diameter of the abdomen, or still better, by a greater tendency of the uterus to develop laterally rather than vertically.

The first condition was found in Madame B., who was small, while her children were large. Our efforts were then directed towards preventing the excessive lateral development of the uterus and at the same time to allow it all necessary space for its vertical enlargement. As I could not precisely determine the time when the influence of the lateral development of the uterus would be most manifested, as soon as I could distinctly palpate the organ above the pubis, I advised the use of a double binder with compresses, by means of which transverse pressure could be made over the lateral walls of the uterus.

In proportion to the advancement of the gestation, was the size of the compresses increased, but this was soon stopped and we confined our efforts to merely applying the binder quite firmly over the lateral compresses. These compresses were made large enough to render, by lateral compression the antero-posterior diameter of the abdomen greater than the transverse. This binder remained in position even during the night, until the termination of pregnancy. In order to aid the action of this mechanical means, I strongly insisted that Madame B.

should not bend over, either in sitting or stooping, for fear of forcing the fœtus to abandon its favorable position, whence, perhaps, we could only with difficulty dislodge it. During the entire course of her pregnancy, Madame B. also made use of an arm chair having a strongly inclined back.

Success crowned our efforts, for she was happily delivered, May 18th, 1848, of a boy who presented by the vertex."

We believe it would be difficult to deny the action of the mechanical means which were here employed.

Thus it has been advised from the very beginning of the present century, to maintain the fœtus in the situation we have caused it to assume by the dorsal or lateral decubitus, immobility, lateral compression, rupture of the membranes, ergot, simple application of the binder, a bandage provided with compresses, a bandage provided with a double compress, and finally constant compression made over the head either by the hands of the midwife or by those of the husband. (Ellinger.)

Generally when the means extolled for procuring one and the same object are so numerous and varied, it, as a rule, proves that the best means is still to be found. Is it thus in the present instance? I believe so.

## NEW METHOD FOR DEFINITELY TRANSFORMING MAL-PRESENTATIONS INTO VERTEX PRESENTATIONS.

After studying for a long time the accommodation of the fœtus, and I believe recognizing its causes and discerning the degree of influence of these causes, it was easy for me to go a step farther than Wigand, by observing nature, and trying to imitate her not only at the moment of labor, but also during gestation.

Appreciating an important fact, which had been proved by a number of clinical observations and statistics, that multiparity is by far the most frequent cause of mal-presentations, it became necessary to find the reason.

This problem, on the whole, was simple and easy to solve; it sufficed to consider it in the following manner.

A woman well-formed, both as regards hard and soft parts, is confined several times at full term with children equally well-formed, but in proportion as the number of pregnancies increase, the tendency to mal-presentations becomes more and more manifest. What is the cause?

A little reasoning soon shows that if the ovum be normal, that is to say, if the fœtus be well developed and well formed, the quantity of liquor amnii neither too little nor too great, the placenta normally inserted, whatever alterations occur under these conditions, must reside in the maternal organization.

Attention being therefore directed exclusively to the mother, the bony structures not being altered are soon eliminated, and there only remain the soft parts for consideration. They are in effect the only structures upon which each pregnancy impresses indelible marks as regards appearance, form, and consistence. We have then only to determine what are the modifications of these parts, which give rise to the disposition to mal-presentations. For this purpose it is only necessary to examine the walls of the two cavities, viz: the uterine and abdominal, in which the fœtus and the gravid uterus develop.

Being brought to this conclusion by such reasoning, I then had recourse to the clinic to elucidate this last factor in the question. The great number of examinations which I was able to make upon women in different periods of gestation, demonstrated what was already well known, viz: that in primiparæ the fœtus at the age of 7 or 8 mos. contracts definite relations with the pelvic excavation, while on the contrary in multiparæ until the very last term of pregnancy it moves with more or less facility above the superior strait.

From this time forth the reason of this difference was manifest.

In as much as all the factors of accommodation existing in the fœtus were normal, I had to conclude that the maternal factors must be more or less at fault, and among these latter, it was the element of *form* which suffered the most profound impression.

Two causes concur to make the uterine cavity lose its normal shape by successively repeated labors: the changes in its own wall and those in the abdominal wall.

As the uterus after labor and during involution undergoes

a sort of renovation, it is probable that when its walls are distended by a new pregnancy, they do not offer the same tonicity or the same elasticity as formerly, and in a word lose more or less their special property of preserving the form of the organ.

Perhaps their thickness is also diminished; but this point is not completely elucidated. This is the first condition then, that renders the tendency to uterine accommodation less pronounced, (*see Accommodation.*)

On the other hand the abdominal wall also undergoes profound modifications with each succeeding pregnancy. The muscles experience an elongation, an alteration in relation, the fibro-aponeuratic membranes are stretched and the return to their primitive condition is never perfectly accomplished.

In effect, the abdominal cavity becomes more spacious with each pregnancy.

"The muscular walls that clasp the full term uterus upon nearly every side" (1), no longer adapts itself to the organ so accurately, but holds it only feebly, and allowing for it such large space, does not force it to descend deeper into the pelvic cavity.

Thence, the non or incomplete accommodation shows itself by the more or less pronounced tendency to mal-presentations or by the absence of any fixed presentation at all.

Being convinced of these facts, I determined to give to the abdominal wall the power which it lacked, and to the uterine wall the support which it needed. For this object I had made by M. Raoul Mathieu a bandage of which the following is a description.

This bandage is composed of three pieces:
a right and left lateral piece forming the body of the bandage, and an intermediate piece forming the anterior part.

The posterior P and anterior T parts are of strong whalebone, joined together laterally by an elastic C and posteriorly by buckles and straps, to tighten or loosen the bandage according to the size of the abdomen. The front is laced together

1. Dubois and Pajot. Traité complet de l'art des accouchements, 411.

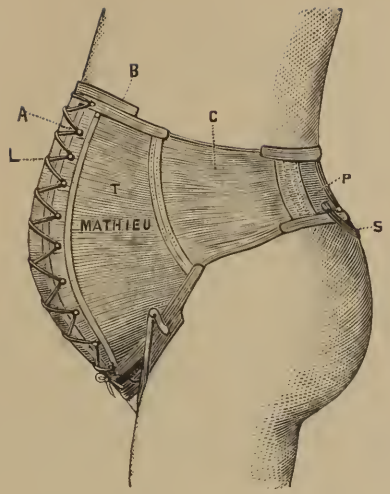



FIG. 28. Bandage applied : lateral view.

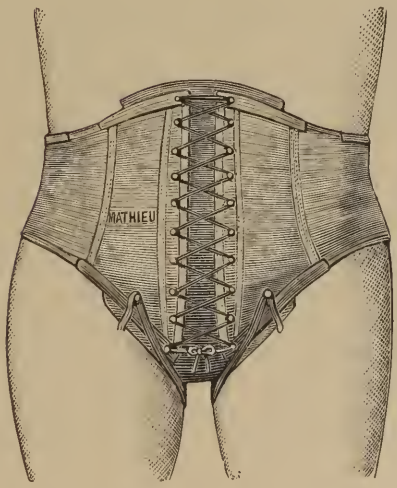



FIG. 29. Bandage applied : front view.

crosswise over American eyelets. The piece B is of whale-bone covered with flannel, and is applied over the abdominal wall before the bandage is permanently fixed; this completes the bandage, both preventing the hard contact of the lacing with the skin and rendering a strong compression supportable. The thigh-straps are put on to prevent the bandage from riding up over the abdomen.

*When should this bandage be applied, and to what cases is it applicable?*

In a woman 8 months pregnant, if the head be not engaged in the pelvic excavation, the bandage should be applied. If there be a presentation of the breech or shoulder, version should be performed, the head turned below and the bandage immediately applied. It is necessary that the bandage be passed under the flanks of the woman before version is performed, for sometimes as I have observed with M. Tarnier, after the head is turned to the plane of the superior strait, the effort made by the woman to raise herself up, suffices to reproduce the mal-presentation. We should, then, before fixing the bandage, be well assured that the head is above the excavation. During the first day the compression should be moderate; we make the compression constant and uniform during the succeeding days by strapping the bandage tighter behind; this is necessary on account of the elasticity of the rubber and also of the accommodation of the fœtus.

In every case where the bandage has been applied, it has been perfectly well borne. Generally a decided relief is experienced in consequence of its use. There has *never* resulted any trouble either to the mother or the child.

The bandage may be removed before labor if the head sinks into the excavation; but if the head rests on the plane of the superior strait it should be removed only when the os is completely dilated and the membranes ruptured.

Thus, you observe, I not only apply the bandage after performing version by external manœuvres, but also during the eighth month of pregnancy, even if the head be below, providing there be no pelvic accommodation.

I believe, that in bringing about a complete accommodation during gestation by this means, we may cause the various pro-

lapses of the extremities and of the cord, as also face presentations to disappear. I will also here repeat what I said before the Medical Society of Public and Professional Hygiene. (1)

" I think that a new chapter should be added to those already known concerning pregnancy. I believe that we should examine during the latter months of gestation, if the child be accommodated, if the presentation be favorable, if there be a mal-presentation, in order that we may then and there correct it. In a word: *if, during the latter months of gestation the head of the fœtus be not in the excavation, we should place it there.*

Unless I am mistaken, we can in all cases prevent presentations of the shoulder, of the breech and of the face, of which we all know the deplorable consequences. Just as women are vaccinated and re-vaccinated in order to escape variola, so should they likewise be examined in order not to expose themselves or their offspring to that dreadful operation of internal podalic version. The means which we now employ to make this examination, and correct the abnormal situations of the fœtus in utero, are neither more painful nor more repugnant than those used in the performance of vaccination."

When I communicated my memoir to the Chirurgical Society, I had only a very limited number of cases. I am now happy to offer a much greater number, thanks to the assistance of my teachers and friends, whom I here beg to accept this expression of my deepest gratitude.

True it is, indeed, that even by adopting this methed and always producing vertex presentations, I have no right to say that I have entirely prevented the occurrence of mal-presentations, since in a certain number of cases, nature at the very moment of labor would have produced the same result, but at all events I have made it a certainty, and if by these means some lives may be saved, I will indeed be largely recompensed.

* * * * * * * * *

Here follows a graphic record of 23 cases to prove the efficacy of the foregoing.

1. "*Recent considerations upon the hygiene of pregnancy.*"
*Bulletin de la Société de médecine publique et professionnelle.* T. I. 1877.

## ERRATA.

Page 9, line 10—Read: since *the* gravid, &c.

" 45-—The two lines below fig. 24 should be above it.

" 71—Line 6 *from bottom:* Tarnier.

" 98, line 17—Read: the muscular *wall* that *clasps*, &c.